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tives. Page 56.

Dodge sues D&B over 'firing'

BY NELL MARGOLIS
CW STAFF

CAMBRIDGE, Mass. — A
"merger of equals" that made
McCormack & Dodge
Corp. and Management Science
America, Inc. took a single pea-
like turn last week when former
M&D President Frank Dodge
filed a lawsuit claiming he was
driven out of office. Dodge seeks
to be freed from a noncompete
contract clause.

The complaint filed here by
Dodge named M&D, The Dun &
Bradstreet Corp. — M&D's
owner since 1983 — and two
D&B officials. Dodge said that he
was not only figuratively shown
the door in mid-February but
also literally locked out of the
firm that he co-founded 21 years
ago and helped build into a major
applications market player.

Dodge was not pushed, but
rather jumped, maintained D&B

and M&D in a series of memos,
correspondence and statements
to the press at the time of
Dodge's reported resignation.

Dennis Kelleher, counsel for
the defendants, said D&B and its
co-defendants will file their re-
ply today. The lengthy docu-
ment, Kelleher said, will show
that D&B "had and have the
highest regard for Frank Dodge

and did everything in their pow-
er to keep him [aboard]. Up until
the day he left, they hoped and
expected that he would play a
major role in the new company
as a key senior executive."

Notwithstanding company
policy to not comment on mat-
ters pending before court, Kel-
leher said, "because Mr. Dodge
Continued on page 103

Dirty laundry list

Frank Dodge, M&D's former presi-
dent, alleges in his suit against Dun &
Bradstreet that he:

■ was publicly humiliated by being locked
   out of his own office
■ learned of his position in the merged com-
   pany from a press release
■ was effectively fired following John Imlay's promotion
■ was falsely accused of breaching his fiduciary duties
■ has been denied severance compensation

FCC ready to loosen shackles on AT&T business services

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The
Federal Communications Com-
mission tentatively concluded
last week that it can relax its
regulation of AT&T services for
big businesses because of the in-
tense competition in that seg-
ment of the long-distance mar-
ket.

The FCC proposed streamlin-
ing tariff regulations that AT&T
complained are hampering its ef-
forts to compete with MCI Com-
munications Corp. and U.S.
Sprint Communications Co. for
corporate accounts. AT&T
users for AT&T in markets
where competition is robust,
simply because it means AT&T

will have more flexibility to com-
pete for users' business, accord-
ing to Henry D. Levine, an attor-
ney representing the Committee
of Corporate Telecommunica-
tions Users. He predicted that
the FCC proceeding will be com-
pleted in the last quarter of 1990

or the first quarter of 1991.

As a practical matter, the
FCC proposal will eliminate the
price ceiling and price floor im-
posed on AT&T business ser-
vices, giving the carrier much
more freedom to cut prices to
meet the competition.

Large users can expect to see
more competitive prices from
AT&T in the future, according
to Kenneth L. Phillips, vice-pres-
ident of telecommunications
Continued on page 4

Windows to rattle OS/2 cage

Version 3.0 to crack
DOS memory barrier

BY CHARLES VON SIMSON
CW STAFF

REDMOND, Wash. — Micro-
soft Corp. continues to tinker
with the worst-kept secret in the
computer industry — Windows
3.0 — while early users said the
impressive new version of the
DOS-based package will give
corporations yet another reason
to delay their migration to OS/2.

"Windows 3.0 is going to
blow OS/2 away," said Carol
Patton, editor of "Acknowl-
edge," a newsletter for Windows
and Presentation Manager de-
velopers. Patton said she has
seen Windows 3.0 as well as
OS/2 Presentation Manager.

"The applications that neither
run on nor play as well with
Microsoft's is ready," Patton said. "At this
point, the time frame is not criti-
cal."

Developers said that the as-
yet-unannounced Windows ver-
sion can only strengthen the po-
sition of DOS. "Looking at the
functionality of 3.0, it is going to
be very difficult to sell the tech-
nical superiorities of OS/2 to end
users in the near term," said Mi-
chael Grant, marketing manager
Continued on page 105

Computer crime: Ugly secret for business

First in a four-part series

BY MICHAEL ALEXANDER
CW STAFF

Computer crime is cost-
ing U.S. industry bil-
lions of dollars annual-
ly, according to some
estimates, but it may
take even greater losses before
industry and the government
devise a coherent strategy to
combat it.

"I think what it is going to
take is people dying, unfortu-
nately, before anything will be
done about computer crime,"
said Kenneth Rosenblatt, depu-
ty district attorney for the
County of Santa Clara, Calif.,

and the lead attorney for the
district attorney's High Tech-
nology Unit. He said that it is
inevitable that high-tech tam-
pering of corporate
computer systems
will cause a "hack-
er-induced death"
before long.

The view of law
enforcement offi-
cials, legal experts
and industry re-
searchers is that a
computer crime
wave of enormous
proportions is sweeping the na-
tion, yet little is being done
about it for several reasons.

Here are two of the key
sticking points:

First, "computer crime" re-
sists definition. For one person,
it is any crime directed at or
taking place within a computer;
for another, it is
any crime in which
a computer is a tool
of the crime.

Second, busi-
nesses report only
a small percentage
— about 6%, by
one estimate —
of criminal acts
aimed at their com-
puter systems, for
fear that the publicity will be
bad for business or attract
copycat crooks.

Without any kind of national
Continued on page 104

IN THIS ISSUE

Quotable

UPDATE

If severance be the music of life, then play on! Who says this industry doesn't have a heart? The deals-in-avoidance-of-layoffs offered by the likes of DEC and IBM would make even the most ardent union backer blush. Compare deals such as the minimum 40-week-plus benefits (maximum of two years) severance at DEC with the unceremonious plant closings of General Motors, wherein 10-year employees have found themselves hitting the bricks with little more than unemployment compensation. It's one thing to flash TV ads claiming yours is a company of individuals, all so important. It's quite another to put your money where your mouth is.

Kendall McGaw's Lee Risio shares his thoughts on how he divvied up an integration project. Page 63.

EXECUTIVE BRIEFING

■ **Computer crime does not get much attention** from law enforcement officials because it is poorly defined, and businesses are scared to report it. Experts say it may take a catastrophe — such as loss of life — to draw attention to its perils. Page 1.

■ **IS must be embedded in an organization** to be effective in the long run. High-tech executives can learn to systematically build information systems into their organization's strategic plans by participating in executive and information committees; satisfying internal and external "stakeholders"; knowing the value of an organization's information investment; and adapting strategies to match their organization's culture. Page 71.

■ **Businesses are too conditioned to think of IS as an expense** rather than as a way to do things differently, says the CEO of a UK-based management consulting company. He recommends re-engineering processes through information by approaching each opportunity to use IS as if computers had never been used before. Page 53.

■ **The PCC is considering easing regulations on AT&T services** for big business, a move that would probably lead to more competitive pricing and quicker approval of AT&T's services. Page 1.

■ **Compaq's back on the shelves at Businessland** — or will be soon. The leading PC-compatible maker and reseller ended their year-old split last week in a marriage of mutual convenience. Page 6.

■ **Frank Dodge**, a co-founder of McCormack & Dodge, is suing The Dun & Bradstreet Corp., alleging that he was fired after D&B's acquisition of MSA — contrary to D&B's claim that he resigned. Dodge is seeking an out from a contract clause that bars him from competing with D&B for a year. Page 1.

■ **Senior manufacturing executives** are cooling to the benefits of information systems, convinced that the gains do not justify the costs. A Touche-Ross survey finds that these executives are turning their attentions to non-IS items, such as improving the skills of their workers. Page 56.

■ **Deciding which pieces of an IS project to apportion to an outsider** involves puzzling out questions about finances, resources, emotions

and politics. A good start is to assess the parts of your business that are the best candidates for integration by using established rules for gauging what offers the highest yield. Consider the organization, too. Smooth integration of systems does not always equate to smooth integration of personnel and work flow. Page 63.

■ **PC prices continue to slide**, despite the best efforts of manufacturers to prop up margins and support their dealers. Competition continues to drive prices down, and a soft personal computer market is not helping. Page 4.

■ **IBM raised prices ranging from 3% to 10%** last week, but many major products were excluded from the increases. The only major products apparently not exempted were 3390 disk drives, hardware announced before Nov. 30 and AS/400 software. Page 103. IBM also selected Adobe as the font standard of choice for SAA platforms last week. Page 105.

■ **On-site this week:** A Florida bank goes on an acquisition spree and finds happiness through the use of tools that automate program conversion. Page 27. Mattel relies on a central project management system to help Barbie, Ken and all their friends get to the mall on time. Page 31. A NASA research center stays ahead of the times by going with a 100M-bit/sec. fiber backbone on its 2½-square-mile campus. Page 48. Manufacturers Hanover Corp. finds dial-less workstations are the solution to its security problems. Page 39.

Catching a ride on the wave of PC price cuts

BY RICHARD PASTORE
CW STAFF

Despite attempts by some vendors to boost or stabilize personal computer prices in the dealer channel, a recent spate of hardware price cuts indicates that users will continue to see cheaper PCs and peripherals, observers said.

The latest wave of cuts began in earnest early this year in response to dismal 1989 fourth-quarter sales, said Paul Zorfass, an analyst at The Yankee Group in Boston. Vendors ranging from the first tier to the mail-order players have slashed their prices (see chart at right).

Such companies as AST Research, Inc., IBM and Hewlett-Packard Co. have implemented or revised dealer policies to bolster street prices, but their own discounting undermines their intentions, analysts said.

HP, for example, recently told its dealers they will be reimbursed for advertisement expenses only if they tout service and support offerings as opposed to price alone. "If you advertise based on price, it tends to a lot of price cutting in the dealer market," an HP spokeswoman explained. The restriction only applies to new Laserjet printer products, but HP will consider applying it to PCs as well.

Yet last month, HP cut the price of its Laserjet IID by $800. It also lowered prices and boosted hard-disk capacity on some PC models earlier this year.

"The vendors have conflicting goals," said Leslie Fiering, an analyst at Gartner Group, Inc., a market research firm in Stamford, Conn. "The vendors are grappling with how to better support their dealers, but they have their own competitive pricing pressures."

Red-bag sale

In the meantime, users will continue to see red-tag specials both in the retail and direct-selling channels.

"I haven't had many problems getting discounts from our vendors," said Nancy Schroeder, office systems manager at Merchants Insurance Group in Buffalo, N.Y.

"Higher performance machines are costing us a lot less," added Sue Taylor, information center manager at Garrett Automotive Products Co. in Torrance, Calif.

A typical example of such price erosion is the Compaq Computer Corp. Deskpro 386S. Its average street price dropped from $3,616 in January 1989 to $2,825 in January 1990, according to Storeboard, Inc., a market research firm in Dallas.

Analysts predicted that average list and street prices will continue to fall from 15% to 20% through 1990. "We see it as a

The beat goes on

Recent price cuts by various vendors indicate competitive pressures remain high

January	
3Com cuts bridge prices 5%-25%	
IBM reduces Printer prices 5%-28%	
Apple cuts Macintosh SE, SE/30 and Laserwriter printers by as much as 17%	
Dell Computer lops $300 off 386 PC and $296 off laser printer	
March	
AST Research squeezes prices on 286 models by about 20%	

CW Chart: Marie Holmes

fairly competitive year, particularly in the 80286 market," said Bill Lempesis, an analyst at market research firm Dataquest, Inc. in San Jose, Calif.

As if in evidence, Advanced Micro Devices, Inc., a manufacturer of 286-compatible microprocessors, last week dropped OEM prices 30% for its 16-MHz version. Lower costs for such PC components have added momentum to the downward price cycle, Lempesis noted.

Analysts agreed that users — especially sophisticated ones — will benefit from the plummeting prices in the short term. But the competitive pressure may lead to a vendor shakeout in the future, which will leave users with fewer options.

"Some low-end compatible makers are operating on slim margins as it is," Lempesis said. Therefore, it may be difficult for them to survive repeated downward pricing spirals.

Mail-order firms such as Dell Computer Corp., which underprice the mainstream vendors by avoiding overhead costs, actually hope to benefit from falling prices and shrinking dealer margins.

"It works to our advantage because the tighter the margins are, the more business the retailer has to walk away from," said Joel Kocher, Dell vice-president of sales and marketing.

However, Dell is not immune to the discount pressure. It has slashed its own PC and peripheral prices this quarter, and Chief Executive Officer Michael Dell acknowledged, "There's always the risk of massive pricing pressure."

AT&T
FROM PAGE 1

policy at Citibank in New York.

Just as important, the FCC proposal would cut the time it takes AT&T to get regulatory clearance to offer a new service from 45 days to a single day.

Several users have complained about the regulatory hassles of dealing with AT&T. Last year, George-Pacific Corp. in Atlanta switched from AT&T to MCI because of service delays related to the lengthy tariff review imposed on AT&T and called for deregulation "so all carriers are equally free to compete."

John B. Lynn, telecommunications counsel for Dallas-based Electronic Data Systems Corp., said that AT&T's competitors are able to exploit the regulatory process to delay AT&T's Tariff 12 offerings. He said competitors repeatedly raise objections that have already been rejected by the FCC, a tactic he called "regulatory gaming."

The Commission's proposal, which faces several months of public comment and revision before becoming final, comes at a time when AT&T, MCI and U.S.

Sprint are competing feverishly to sign multimillion-dollar contracts with the nation's largest telecommunications users.

For example, AT&T has signed up firms such as Ford Motor Co. and Du Pont Co. with its Tariff 12 custom-network contracts, while MCI has snared a $150 million contract to supply Merrill Lynch & Co. with worldwide voice and data services.

MCI and U.S. Sprint contend the FCC for limiting its proposal to the business sector and recognizing that major portions of the long-distance market are still dominated by AT&T and have barriers to competition.

AT&T's competitors, however, are expected to fight several aspects of the FCC proposal.

U.S. Sprint said it remains concerned about the rapidity with which AT&T's Tariff 12 and 15, and the Competitive Telecommunications Association contended that AT&T still enjoys several technical advantages in connecting calls to the Bell operating companies, which were a segment of AT&T before their divestiture.

Phillips said the only potential problem with deregulation is that AT&T could engage in predatory pricing, which is below-cost pricing that is intended to drive competitors out of business. But Phillips said he doubts AT&T would be foolish enough to invite another antitrust suit by engaging in predatory pricing.

The FCC proposal stated that "maximum streamlined regulation," a euphemism for partial deregulation, would be applied to the following AT&T services:
- The "business services basket" established by price cap regulation, including private lines, Software Defined Network, WATS and Megacom.
- Services offered outside the price caps regime, notably Tariff 12, Tariff 15 competitive discounts and Tariff 16 services for government agencies.

low-cost pricing that is intended to drive competitors out of business. But Phillips said he doubts AT&T would be foolish enough to invite another antitrust suit by engaging in predatory pricing.

The FCC said that streamlined regulation means that AT&T would be able to file tariffs on just one day's notice and without submitting the cost data now required.

By proposing a phased-in approach to deregulation, the FCC backed away from the notion of removing all AT&T's "dominant carrier" classification, although it did seek public comments on the latter approach.

CORRECTION

The software distributor firm K. K. Asimoto was incorrectly spelled on the viewpoint page of the Feb. 19 issue of *Computerworld*. The above spelling is correct.

FCC limits carrier profits

The Federal Communications Commission, at its meeting last week, forged ahead with a plan to apply a price cap regulation to local-exchange carriers in 1991.

The FCC, fine-tuning its proposal, added a "sharing device" that requires the local telephone firms to share with ratepayers any earnings above a certain level. The threshold will be determined in a separate proceeding this year.

Price caps regulation generally replaces rate-of-return regulation with a price ceiling, but the FCC has added an "automatic stabilizer" mechanism to restrain the local carriers from runaway profits as well. The automatic stabilizer has a ceiling and a floor to limit profits to a "zone of reasonableness."

NEWS SHORTS

Cincom sells off Net/Master

Systems Center, Inc. last week completed negotiations giving Systems Center exclusive worldwide marketing rights and assets related to Cincom's Net/Master network product line at a reported price of $43.5 million. More than 125 Cincom employees will be given the opportunity to transfer to the Systems Center operation. This sale follows a Systems Center agreement in December to acquire Software Developments International Party Ltd. in Australia, the developer of Net/Master. In 1984, Cincom had acquired exclusive Net/Master worldwide marketing rights outside New Zealand and Australia.

An Wang hospitalized

Wang Laboratories, Inc. founder An Wang was re-admitted to Massachusetts General Hospital in Boston last week. Wang, 70, underwent surgery last summer to remove a malignant tumor from his esophagus. Company spokesman Paul Guzzi declined to say if Wang's hospitalization was specifically related to last year's surgery. "This is certainly related to his overall condition," he said. Guzzi added that Wang is "active and alert" and is working on business documents.

Sybase and DG in joint venture

Sybase Corp. and Data General Corp. agreed last week to jointly market each other's products. Sybase will now support the DG Aviion line of reduced instruction set computing-based Unix computers, which are based on Motorola, Inc. 88000 chips and on DG's DG/UX operating system. The agreement pushes the total number of platforms supported by Sybase to 13, a spokesman said. Sybase will be available on the Aviion platform in the first half of 1990. Pricing will range from $1,200 to $72,000, based on the size of the distributed computing network supported.

SPA claims it's winning

In the ongoing battle against software piracy, The Software Publishers Association (SPA) boasted a victory last week with the completion of several successful corporate audits. The audits were designed to replace litigation and involve an analysis of a firm's hard-disk directories and a review of software purchase records. When unauthorized software surfaces, the audited firm is responsible for destroying it, buying a legitimate copy and contributing to the SPA Copyright Protection Fund. The SPA offers a self-audit kit free of charge to corporations.

Call for intellectual property laws

The U.S. dominates the global software market but will need more effective intellectual property laws if it is to ward off serious competitive challenges by Europe and Japan, according to a report released last week by the U.S. Office of Technology Assessment (OTA). Existing laws governing intellectual property are not keeping pace with the rapid changes of software technology, which is not comfortably covered by either copyright or patent laws. The international scope of software markets complicates the problem of crafting laws that are in harmony with treaty obligations and laws of other nations, the OTA said.

New CD-ROM technology released

The first release of the compact disc/read-only memory (CD-ROM) Extended Architecture format, a new technology that incorporates audio and video for the compact disc interactive (CD-I) and serves as a bridge between CD-ROM and CD-I, is now completed, with the second release already under preparation. Philips Telecommunications N.V. announced. The first release of the new technology, being developed by Philips and Sony Corp, in cooperation with Microsoft Corp., includes information on interleaved files and compressed sound, whereas the second release will include a recommended CR content description for still pictures, graphics and compound documents, according to Philips.

Businessland, Compaq settle

BY MAURA J. HARRINGTON
CW STAFF

HOUSTON — Businessland, Inc. and Compaq Computer Corp. laid their swords to rest last week, forming a business alliance prompted by friendship and driven by a changing market.

The agreement meant the end of a year-long separation caused in part by the companies' differing opinions of the amount of money Compaq was expected to contribute to Businessland's Market Development Fund, according to Steve Lair, an analyst at San Jose, Calif.-based Dataquest, Inc.

Although Michael Swavely, president of Compaq North America, said sales revenue doubled from 1988 to 1989, the company's market share — based on sales through retail stores — suffered nonetheless, dropping from 27.7% in first-quarter 1989 to 23.7% in the fourth quarter, according to Dallas-based Storeboard, Inc. (see chart).

Meanwhile, Businessland — to make up for the loss of Compaq — began cutting its profit margins on IBM products, which affected margins throughout the market, according to research analyst Melinda Reach at New York-based Merrill Lynch Research/U.S.

Being recommuncated by Compaq cost Businessland a reported $150 million in lost revenue, or 15% in comparison with 1988, said David Norman, Businessland's chairman, chief executive officer and president.

However, the more important aspects of the reunion, Lair

When the market speaks

Compaq has had a tough time maintaining market share since its split with Businessland a year ago

Source: Storeboard, Inc.   *CW Chart: John York*
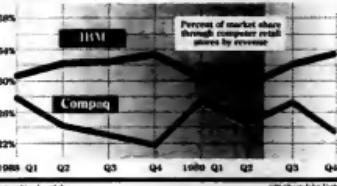
said, are the changes that both companies are going through.

Compaq is changing because its Systempro line brings the company into a new level in the computer market. It needs a dealer such as Businessland to be able to handle the sales strategy necessary for this more complicated product line, Lair said.

Businessland needs Compaq to help boost its sales and increase its credibility as it upgrades operations to include more service, support and connectivity products, he added.

Analysts agreed there is something to be gained by both, but Businessland stood to gain the most hard to regain even some of the major corporate customers lost when Compaq jumped ship last year, Reach said. "I think [Businessland] will be able to get most of its lost business back by the fourth quarter, and I think it will be able to get back some of its major customers lost last year. It will be hard, but they can do it."

Stephen Rood, a macrotechnology manager at New York-based Cooper & Lybrand, said

be used to buy Compaq computers through Businessland before the relationship was severed, and he would consider buying from it again if it had a pricing strategy competitive with other major retailers, such as Computerland, Inc. and Innacomp Corp.

"Certainly I would consider doing business with them again if they had the pricing and availability that I was looking for," Rood said, adding that service and support are not things he looks for in a reseller because his company handles them in-house.

In related business, Enzo Torresi resigned from the Businessland board of directors last week. Torresi, who had formulated on Businessland's board of directors even after becoming president and CEO of San Jose, Calif.-based Netframe Systems, Inc., resigned to avoid a conflict of interest.

Because Businessland will soon sell Compaq products again, Torresi and his competing Netframe line makes it inappropriate for him to remain on the reseller's board.

DEC offers severance plan in bid to trim work-force fat

BY MARYFRAN JOHNSON
CW STAFF

Digital Equipment Corp. begins a companywide move this week to cut its work force by several thousand employees, with an emphasis on voluntary participation rather than layoffs.

The massive severance plan is being offered to selected business units within the company during the waning weeks of DEC's third fiscal quarter, which analysts believe may be the company's first to show a loss.

Industry analysts expect the plan to be offered to between 8,000 and 10,000 employees, but the company draws any targeted number of employees. As of January, DEC's worldwide employee count stood at 125,900.

"DEC, like all the other computer companies, really needs to trim the fat," said Robert Cameron, an analyst at the Boxboro, Mass., office of Dataquest, Inc. "The next three to five years will be lean, mean competition in this industry."

DEC's work-force reduction will be patterned after a program offered last fall to 700 employees in one of DEC's New Hampshire facilities. Approximately 260 people took advantage of that program, which offered lump sum payments of 40 to 104 weeks of full pay plus a year's worth of health, life and dental insurance coverage.

However, DEC spokeswoman Niski Richardson stressed that incentives for early retirement will not be offered by DEC. Such incentives are viewed as

bad business by DEC executives, particularly in light of IBM's experience with an early retirement program in 1968.

"People I talk to at DEC are well aware of how IBM's early retirement program essentially paid their senior level, high-quality staff to leave," Cameron said. "No company can afford that."

DEC does have an early retirement program, which begins at age 55 after 10 years' service, but it offers no special incentives.

Although DEC may offer the program to as many as 10,000 employees, only 4,000 to 5,000 are likely to actually leave, said Michael Geran, an analyst at Nikko Securities, Inc. in New York. "Frankly, I'm impressed with [DEC's severance plan] after having gone through three brokerage failures on my own and ending up with two weeks' notice," Geran said. "I look at DEC and think, 'What beautiful people!'"

IBM feels broad RISC demand

BY AMY CORTESE
CW STAFF

TORONTO — Software vendors, users and industry observers suspected it from the start, and now even IBM is acknowledging that the RISC System/6000 may be a great commercial multiuser machine.

At an information systems conference on open systems held last week, Nick Donofrio, president of IBM's Advanced Workstation Division, offered his most sweeping support of the RS/6000's place in the commercial world since the Unix-based systems were announced nearly a month ago. At that time, IBM very decidedly pointed the powerful reduced instruction set computing (RISC)-based machines at the technical market and away from its proprietary midrange platforms.

"Our major thrust was technical because that is the fastest growing market and the one where IBM has a only small base," Donofrio told an audience of IS executives, who had expected that IBM was not addressing commercial needs with the RS/6000. "With such a large announcement, if we had to focus on the area where we are most deficient. But these machines will do very well in the commercial multiuser environment, and we intend to sell into that environment as well," he said.

Much of the interest in IBM's RISC family has been from commercial sectors such as insurance, retail and the financial industry rather than from the elusive workstation users that IBM covets.

Those orders are coming in despite IBM's inattention so far to commercial users. "I had someone from IBM come in to talk about the RS/6000, and he tried to sell me an Application System/400," recounted one IS executive from a large luxury hotel chain.

However, Donofrio painted a picture of an IBM that will sell with equal grace a Unix-based system or a proprietary system. "IBM is not in the business — anymore — or trying to tell you what you want," he said.

"That doesn't mean that we won't get out of line from time to time, but overall, we will sell you what you want," he said.

Cool shoulder

The foremost members of the Open Software Foundation (OSF) last week displayed lukewarm support for the upcoming OSF/1 operating system.

At a conference on Unix and Open Systems, Digital Equipment Corp., IBM and Hewlett-Packard Co. delivered decidedly cool endorsements of OSF/1.

"We would be foolish to move to OSF if it doesn't provide a competitive product," declared William Heffner, DEC's vice-president of systems software.

IBM and HP were less harsh but still stopped short of firm commitments. "As founders and strong supporters of OSF, we have every intention of licensing it, evaluating it and moving in that direction at whatever pace is appropriate," said Nick Donofrio, president of IBM's Advanced Workstation Division.

Willem Roelandts, vice-president and general manager of HP's Computer Systems Group, said that HP has a commitment to support OSF products in its product line.

AMY CORTESE

Midget model laptop unveiled

BY JAMES DALY
CW STAFF

Sony Corp. upped the ante in the portable computer market last week with the announcement of a handheld computer that recognizes handwriting and weighs less than three pounds.

Although the Palmtop PCT-500 is scheduled to be introduced in Japan on April 1, officials at the electronics giant said the 2.8-pound model will not be available in the U.S. for some time because its software is written in Japanese. The machine will sell in Japan for $1,320.

The Palmtop flips open to create a writing area that can be drawn on with a specialized pen. The pen uses a small beam of light to write on the screen, move the cursor or activate other commands. Sony officials said the machine uses fuzzy logic to recognize 3,500 Japanese characters as well as English letters. Fuzzy logic works on the principle that computers can handle ambiguous information instead of the traditional yes/no, on/off methods in widespread use.

Analysts said that Sony will face a stiff battle in the handheld market. In September, Grid Systems Corp., a subsidiary of Tandy Corp., introduced a $2,370 system with a similar pen setup and the ability to recognize English. Go Corp., a privately held Foster City, Calif.-based firm, is reportedly working on a similar device.

Motorola revs into server mart

Component maker shifts gears, announces family of multiuser systems

BY AMY CORTESE
CW STAFF

NEW YORK — In a bid to move from component maker to full system supplier, Motorola, Inc. launched a line of multiuser systems last week that it said broke the performance thresholds set less than a month ago by IBM's RISC System/6000 line.

The Motorola Multiprocessor Computers — based on the firm's 88000 reduced instruction set computing (RISC) chip — range from 27 million to 67 million instructions per second (MIPS), nearly double the performance of IBM's high-end Powerserver 530.

The family, scheduled to debut in May, consists of two single- and one dual-processor servers that each come standard with three X-terminals made by Network Computing Devices, Inc., in which Motorola has taken a 10% equity interest. The MPC systems will also come bundled with office automation software from Uniplex, Inc., an MS-DOS simulation program,

and a trial version of Frame Technology, Inc.'s desktop publishing package.

Analysts were impressed with the performance of the systems but said that newcomer Motorola would have more catching up to do. Motorola faces a "heavy learning curve in becoming a systems vendor," said Peter Burris, an analyst at market research firm International Data Corp. "Motorola has been far removed from the end customer." Many agreed that distribution will be key to Motorola's success. The company intends to sell directly to large customers and through value-added resellers (VARs) and OEMs.

John Murphy, a senior consultant at Walt Associates, Inc. in Bala Cynwyd, Pa., said Motorola would push the VAR and OEM channels first: "It's the easiest way to get their foot in the door."

By bundling software and bypassing single-user workstations, Motorola has aimed at the commercial market. No floating-point measures were given; in-

stead, Motorola emphasized its lower cost per MIPS compared with competing servers configured with three X-terminals and similar software. "We're comparing them to IBM's Power-

torola's Computer Group.

While Motorola seeks to differentiate itself with its bundling scheme, some analysts were skeptical, saying it decreases flexibility. "Many large customers view bundled software as a hindrance," said Chris Christiansen, an analyst at Meta Group, Inc. Furthermore, bundled software "means less chance for VARs to make money and raise

have one vendor supporting it," said Barbara Rosenthal, administrative manager at law firm Day, Berry and Howard in Stamford, Conn. "There's no reason I couldn't put the bundled software on and pick and choose pieces of it."

The MPCs can support from three to 32 active terminals on the high-end model MPC 300. The servers run System V/88, Motorola's version of the AT&T Unix System V. Release 3 operating system and include X Window system-based OSF/Motif and Looking Glass, a desktop manager from Visix Software, Inc. A 12-month on-site warranty and a software support program are also included.

Motorola claims that more than 100 software applications will be available in May when the systems ship, compared with 200 that IBM says will be ready for its RS/6000s, which hit the shelves the same month. Currently, there are over 300 applications in the 88 Open Consortium, the Motorola 88000 customer group, but not all of them work with X Window yet. Once the major database vendors such as Oracle Systems Corp, Informix and Ingres are there, "the front-end tools will follow," Christiansen said.

Into the map

Motorola's line of Multiprocessor Computer servers is the first direct challenge to IBM's RS/6000 line of Powerservers

	Internal storage	MIPS	Base price
MPC-100	16M - 32M bytes	27	$22,985
Powerserver 220	16M - 32M bytes	27.5	$38,375
MPC-200	600M - 2.4G bytes	33.8	$35,985
Powerserver 530	16M - 1.28M bytes	34.5	$41,125
Powerserver 540	64M - 256M bytes	41.1	$92,885
MPC-300 (dual processor)	1.3G - 2.4G bytes	67.2	$38,985

* 256M bytes available in fourth-quarter 1990

CW Chart: John York

servers, not Powerstations," said Wayne Sennet, vice-president and general manager of Mo-

the overall cost," he noted.

One potential customer disagreed, however. "It's nice to

Oracle seeks inroads in Eastern Bloc

BY JEAN S. BOZMAN
CW STAFF

REDWOOD CITY, Calif. — Following in the wake of political upheaval in Eastern Europe, Oracle Systems Corp. plans to advance its marketing forces into the Soviet Union, Poland, Czechoslovakia, East Germany and Hungary.

The $900 million software firm created a new marketing subsidiary, Oracle Eastern Europe, which will be managed by a Soviet emigre fluent in several Eastern European languages.

"As the Berlin Wall came down and the regimes in most of Eastern Europe changed hands, we simply accelerated what we would have done anyway," commented John Luongo, senior

vice-president of Oracle's International Division.

Oracle has already signed the first customers for its Oracle Version 6.0 Relational Database Management System, but the SQL*Net communications software and Oracle computer-aided software engineering (CASE) tools are still considered to be "restricted" products by the U.S. Commerce Department and can only be sold with a special license, Luongo said.

Industry analysts said other American software firms are

Oracle's Parad will
head marketing group

rushing to get their products exported to the Eastern European market. "It's vogue to talk about your plans in Eastern Europe," said Bruce Lupatkin, senior technology analyst at the San Francisco firm of Hambrecht & Quist. "But until those countries develop a new economic infrastructure, it doesn't mean much. Any business that does get done will likely flow through the West German subsidiaries of those software companies."

The first Oracle customers in Eastern Europe include The Polish National Bank, The Czech National Bank, the Budapest municipal railway and the Hungarian Electricity Board. Most of these sites are using IBM 4341 clones made in the Soviet Union as well as a variety of PCs.

"There are Oracle users in Eastern Europe who are using illegal copies that have been brought into their countries," said Dr. Yury Parad, the Soviet emigre who will return to Moscow to head up the Oracle marketing group. "All our new customers want to use official copies of Oracle so that we can provide technical support. There is also a great need for training."

Postal hikes raise concerns

BY SALLY CUSACK
CW STAFF

A proposed 19% rate increase for all classes of mail, targeted to take effect in February, could ignite serious cost-control discussions in many corridors of U.S. industry. But that percentage discounts of 2½ cents of the first-class rate for pre-bar-coding their own mail and an additional 2.3 cents for presorting it through a scanner to the third zip code digit. The nearest company has invested $125,000 in a scanner and bar-coding equipment, a cash outlay conservatively estimated to save the firm $250,000 per year.

"It's very difficult to send out checks and premium notices without using the mail," said Gail Geraghty, administrator of mail and transportation services at Aetna Life and Casualty Co. in Hartford, Conn. "Fortunately, this didn't come as a complete surprise to us; we've had some time to think of alternatives." Aetna already utilizes postal discount plans, she noted.

Corporate America generates 83% of all U.S. mail and another 11% is customer-to-corporation correspondence, according to the U.S. Postal Service.

Aetna handles 8 million pounds of mail per year. According to Geraghty, the postal service is giving customers discounts of

theme; what is cost-competitive and what is not is going to drive the market," said Judy Pirani, associate director at BIS CAP International, Inc., a Norwell, Mass.-based market research firm.

Because of the postal rate hikes, facsimile machines will gain more acceptance as a viable alternative, she predicted, noting that it currently costs about 37 cents per page transmission. "Eventually, the fax is going to make its way into the residential market, and companies like MCI are milking their facsimile service subscribers some very attractive offers," Pirani said.

According to David Herndon, senior vice-president of communications at Southern National Bank of North Carolina in Charlotte, the firm is implementing from and a voice-response system to handle account inquiries.

"The Post Office rate announcement had nothing to do with these installations," Herndon said. "It's just better to eliminate the paper-shuffling in some instances. Right now, the bulk of our mailing is done to residential customers, and most of them don't own fax machines."

The current installed base of facsimile machines in the U.S. is over 3 million, and that figure is expected to double by 1992. Pirani feels that small businesses and home offices are going to account for a significant percentage of that growth.

SQL*Net to stretch SNA

O racle announced a communications software product last week that will extend IBM Systems Network Architecture support to non-IBM computer systems. The product, called SQL*Net L/U6.2, will support IBM Personal Computer MS-DOS, Digital Equipment Corp. VMS, Data General DOS operating systems and AT&T Unix System V.

The SQL*Net version for MS-DOS computers and IBM computers made by AT&T, NCR Corp. and Sun Microsystems, Inc. are expected to be available for shipment by the end of March. The Unix versions for the Hewlett-Packard Co. Apollo workstations and DG workstations, along with support for proprietary DEC/VMS and Data General/AOS environments, are scheduled to be shipped over the next six months.

Lotus plants latest flag in VAX territory

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — Lotus' 1-2-3 users are finally getting their chance to play in DEC's sandbox. However, despite expectations to the contrary, it's not clear that many want to.

Following today's scheduled unveiling of Lotus Development Corp.'s spreadsheet for both Digital Equipment Corp.'s VAX and All-In-1 integrated office system, 1-2-3 users will no longer have to stand at arm's length from VAX resources.

First announced in November 1988, the initial design goal for a DEC version of 1-2-3 was to provide file, macro and keystroke compatibility, said Robert Hatcher, Lotus' product line director for DEC products.

Scheduled for availability in the second quarter, 1-2-3 for VAX/VMS and 1-2-3 for All-In-1 were integrated into the DECwindows environment and Decnet architecture with access to resources across the network including databases such as DEC's RDB and IBM's DB2, via the combined efforts of Lotus' Datalens drivers and DEC's VAX SQL Services.

Using DEC's PCSA network architecture, users can link 1-2-3-based personal computers to DEC terminals without file conversions or transfers, Hatcher claimed.

With Decwindows support, 1-2-3 users can open and dynamically resize as many as 26 windows or pop up a graph onto the screen. 1-2-3 users ordinarily cannot open another window without storing their worksheet.

The two vendors are targeting some three million All-In-1 users, but calls last week to some DEC installations elicited mostly yawns, with one notable excep-

tion: users looking to electronically distribute software.

Kellogg Co. expects to move a variety of applications, now spread across many PCs, back to a central location, according to Don Brett, vice-president of information technology at the Battle Creek, Mich.-based firm. The appeal lies in being able to maintain and control software from one location. "We'd prefer to pay for a software license on a gross basis, so the Lotus strategy fits in with that," he said.

At Catel Telecommunications in Fremont, Calif., VAX Systems Administrator Mike Firace is also looking into host-based software distribution. Price is a bigger issue for him: Unless the VAX flavor of 1-2-3 works out to be more cost-effective or offers more advantages, he said, it would not be worth buying for the five to 10 1-2-3 users in his accounting department.

Resource worries

Other users are adamant about keeping their spreadsheets on the desktop, either to avoid sapping mainframe resources or to keep costs down.

"I think these [DEC versions of 1-2-3] are overkill. The price of anything on a mainframe is usually 10 times as much as it is on a PC, so it doesn't pay to do it," said Bruce Gordon, an analyst at Schnitzer Steel in Portland, Ore.

According to Mary Murphy, DEC's 1-2-3 marketing manager, pricing ranges from $795 for a stand-alone workstation copy to $2,100 for a package that runs on a Microvax 3100 and supports six to 12 users, to a $64,000 package that runs on a VAX 9000 supporting thousands of users. 1-2-3 on a PC costs about $400.

Users at Bonneville Power Administration, an agency of the U.S. Department of Energy in Portland, also perform file transfers between VAXs and PC-based spreadsheets. Although system manager Richard Wolff does use DEC Calc on some Microvaxes, he stated that most spreadsheet work is done on personal computers.

What would interest Wolff, who is not impressed with support for All-In-1, is support for the "newer" DEC Compound Document Architecture and Digital Tabular Interchange Format (DTIF). "1-2-3 obviously has a lot of name recognition, but I wonder how it plays with newer products such as Decwrite, which we are hoping to get into," he said.

Among the questions Lotus and DEC will have to answer are whether it is cheaper to run 1-2-3 on the desktop or from a VAX and whether there will be support for CDA and DTIF, along with full Decwindows capability.

Despite these early returns from skeptical users, estimates of a heavy overlap between Lotus and DEC accounts have Lotus and analysts expecting a respectable contribution to the spreadsheet maker's bottom line.

"It will benefit DEC more," argued Chris Christiansen, a midrange analyst at Meta Group, Inc. in Stamford, Conn., reasoning that "VAXs are always going to be a lot more expensive than 1-2-3."

Following today's announcement, all that will remain for Lotus to deliver is 1-2-3/G, a version that runs under OS/2. Despite a heavy schedule of public demonstrations ranging from an appearance before the Boston Computer Society and another slated for the upcoming Guide show, Lotus has remained mum on an announcement date.

NCR Comten front ends get OSI module

BY ELLIS BOOKER
CW STAFF

DALLAS — NCR Comten added an Open Systems Interconnection (OSI) option to its front-end processors last week, extending the reach of the open systems networking architecture that its parent, NCR Corp., unveiled last month.

The OSI software module, announced at the Interface '90 Plus show in Dallas, provides a means of running OSI applications over a wide-area IBM Systems Network Architecture (SNA) backbone network in parallel with either Transmission Control Protocol/Internet Protocol (TCP/IP) traffic.

The module, dubbed Open Systems Interconnection/Communications Processor (OSI/CP), promises to consolidate the company's OSI, SNA and TCP/IP networks. The module works on the NCR Comten 56XS series front-end processors, introduced at the Interface show in March 1989.

A major gap in the offering, however, is connectivity to OSI applications on IBM hosts. NCR Comten said users seeking access to host-based OSI applications will need to use OSI/CP in conjunction with IBM's OSI/Communications Subsystem, expected to be announced later this month. On the other hand, users wishing to connect OSI desktop applications while bypassing a host can use the NCR front end without the IBM component.

Host-based OSI support is critical, said Richard Villars, manager of computer networking strategies at International Data Corp. in Framingham, Mass. However, a more immediate concern will be the performance characteristics of NCR Comten's integrated front end, he said. "The big issue, at least from the standpoint of using it as a router between networks, is performance," he said. "They'll have to show the same performance as a single-function router."

Failing this, departmental users of TCP/IP networks will be unlikely to relinquish control of their networks and allow them to be consolidated on the SNA backbone controlled by the information systems department, Villars said.

A related issue, Villars and others said, will be network management and local-area network support. Currently, NCR Comten's own integrated OSI, TCP/IP and SNA network management package supports only one network management plan, NetView from IBM. While the front-end processors support token-ring and Ethernet, NCR Comten has yet to announce support for commercial LAN protocols such as Novell, Inc.'s IPX protocol.

What is to come

However, it is the future of OSI networking that seems to attract NCR Comten's greatest attention. According to Kenneth Brantley, director of product management at NCR Comten, OSI/CP ties into the Open Cooperative Computing Architecture (OCCA) strategy outlined by NCR Corp. last month [CW, Feb 19].

"OCCA is based on the client/server architecture and is for departmental processing and local-area networks," Brantley said. "OSI/CP will interconnect these into a wide-area network."

A potential market for the OSI/CP option is the government. For example, according to a source at the Defense Logistics Agency, the Government OSI Profile, or GOSIP, requirement requires that all acquisitions by the Department of Defense after August must specify OSI.

"We have 21 [NCR] front ends and about the same number of IBM and IBM-compatible mainframes," the source said.

Originally shipped with SNA support, the 56XS line added support for TCP/IP and Ethernet late last year.

OSI/CP will be available in the fourth quarter and will carry an initial license fee of $7,000, with a monthly license fee of $200. Front-end processors range from $122,000 to $254,000.

IS hits the books in 'frequent buyer' price war

BY MITCH BETTS
CW STAFF

The nation's two largest booksellers touched off a price war last week when they launched competing "frequent buyer" programs, which employ information systems that track customers' book purchases to provide discounts and targeted mailings.

Waldenbooks, a Stamford, Conn.-based chain with 1,300 locations, said it will reward loyal customers with a 10% discount on all purchases and a $5 coupon for each $100 of accumulated purchases. B. Dalton Bookseller, Inc., a major competitor based in New York, countered with its own Booksavers Club offering a 10% discount.

In both cases, the book retailers are issuing membership cards printed with bar codes and capturing the data at the point of sale, company officials said. Technical details about the host information systems were not immediately available.

Ron Jaffe, senior marketing director at Waldenbooks, said the bar-code scanners will send customer data to an IBM mainframe, but he declined to discuss the hardware or software because of the competitive nature of the system.

The frequent-buyer clubs, unlike the frequent-flier programs offered by major airlines, are the latest example of a leading-edge marketing strategy called "database marketing." It requires firms to create a database of details about customers and their buying habits in order to produce highly targeted marketing campaigns and forge a continuing relationship with each customer [CW, March 5].

For example, customer data can be used to identify the science-fiction buffs and alert readers of the romance genre to new book releases. Both Waldenbooks and B. Dalton said they plan to use the point-of-sale data to produce personalized catalogs and other targeted mailings.

"The mass market no longer exists. To succeed in the 1990s, we must tailor our approach to individual consumers

wherever possible," said Bonnie Predd, executive vice-president of marketing at Waldenbooks, a unit of K mart Corp.

Crown Books Corp., a discount book chain based in Landover, Md., plans to test a frequent-buyer club in some California stores but emphasized that record-keeping will be manual. Customers may consider it an invasion of privacy to have retailers track their book purchases in a computer database, explained Crown spokesman Stanley E. Rubenstein.

However, Waldenbooks said that computer technology will continue to play a major role in its marketing strategy.

Frequent reader systems

National book chains are gearing up to track customer buying habits

Group wants to rule the LAN

BY JOANIE M. WEXLER
CW STAFF

In response to what its members describe as an "all-time high level of frustration" with diversification in the industry, a new user group has formed to attempt to nail down some guidelines for running their local-area networks.

The Council for Network Management, which will hold its second meeting in early April, aims to establish operational models and "best practices" for running LANs — akin to the set of procedures that have long been in place in the mainframe environment, according to one organizer. Rick Segal, chairman of the group and technical advisor to Aetna Casualty and Surety Co. in Hartford, Conn., said one of the first issues to be addressed will be LAN backup policies.

"Right now, there is no comfort level in putting mission-critical operations on a LAN," Segal explained. "We need an infrastructure in place for that."

So far, only General Electric Co. has joined Aetna on the user roster. But other users say they think that the goals of the council are worthwhile.

"There are standards for communications protocols, but not many in the operational area," noted Bill Atkins, senior EDP consultant at American Airlines. "We need to look to the vendors to provide frameworks for establishing operational environments for MIS, which is moving along much faster in the mainframe environment, accordingly."

Bill Mansion, director of information resources for Mack Trucks, Inc. in Allentown, Pa., said, "Many people work on a LAN; it would be nice to standardize procedures so that if the LAN administrator is not available, people know what to do."

Segal said the council will aim to alter what he called today's "cowboy attitude" toward LANs. For example, he said, most workstations include a reset button, which tempts people into rebooting a system if something goes wrong. "But what if this machine is being used as a file server?" he said. "Can you imagine running a mission-critical operation — like an airline reservation system or phone company operation — off a PC LAN?"

In addition to allowing user firms to pool their resources, the group intends to create public-domain "requirements documents," which can be reviewed by vendors, to help drive product development.

There's one thing to keep in mind when buying a server.

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East German firm faces challenges

MUNICH, West Germany — To save itself from being overrun by Western European companies pushing into the East German market, East German computer manufacturer Robotron is being forced to make some changes.

Robotron staffers, including desperately needed developers, are heading west, and employees who are staying keep asking themselves whether they will have work to do in six months.

"We are aware that several developments will be out of the question within the months to come," said Robotron manager Reinhard Voigtlader, an adviser to Friedrich Wokurka, the company's general manager. According to Wokurka, employees will have to change their ideas radically. Voigtlader said this will affect computer manufacturing productivity.

Regulations of the Coordinating Committee on Multilateral Export Controls (Cocom) previously forced Robotron to manufacture many computer components at its own plant, whereas Western personal computer manufacturers could buy such parts from the cheapest manufacturer. However, that situation is changing

due to Cocom's recent reforms. In the future, Robotron will be able to buy components on the world market.

The company has "been negotiating with several partners at Siemens [AG] for some time now" regarding possible joint ventures, Wokurka confirmed. "There will probably be a definite decision made by the end of March or early April," he said.

To date, Robotron has been very export-oriented. According to Wokurka, exports represent about 60% of its business.

"Our main markets are the Soviet Union and the East European countries," he said. Ac-

> EMPLOYEES who are staying keep asking themselves whether they will have work to do in six months.

cording to Robotron insiders, the firm's computer exports to the Soviet Union total about two billion East German marks.

The dearth of East Germany's export trade with Western Europe suggests that most products are delivered to Eastern European countries, where the installed base is small. Analysts at PC manufacturer Compaq Computer Corp. estimate the number of installed units at one million or two million, compared with 50 million PCs sold in Western European countries.

Robotron's good trade contact with the Soviet Union and Eastern European countries should sustain the firm for some time. Wokurka said he believes those areas will remain a safe market for the next two years.

This report was prepared by the staff of PC Woche, an IDG Communications publication in West Germany.

Foreign chips hit Japan

TOKYO — The share of foreign-made semiconductor chips in the Japanese market rose for the fourth consecutive quarter to a record 12.9% of the market during the October-December 1989 period, up 0.9% from the previous quarter, Japan's Ministry of International Trade and Industry (MITI) said yesterday.

"The figure reflects the fact that Japanese chip makers continued their efforts to expand imports of foreign chips," a MITI official said.

IDG NEWS SERVICE

ADVANCED TECHNOLOGY

Bridging the real and unreal

'Artificial reality' promises breakthroughs in areas from surgery to space exploration

BY JIM NASH
CW STAFF

With any emerging technology, there is that not-so-thin line between "gee-whiz appeal" and practical appeal.

Enter artificial reality, the ability to program a custom universe into a computer. Throw on a high-tech bodysuit that senses body motions and feeds them into a computer that interprets movements as commands. See through video display goggles that reflect the commands and experience the newly created world.

Artificial reality is a broad term that defines a variety of still-experimental tools designed to make computer and human interactions transparent — and it faces more than a bit of skepticism. Someone in the suit could walk, fly or swim through a simulated room, stepping to pick up objects that have apparent weight, create new objects or watch a prewritten program.

After more than two decades of research and development, the most visible products of artificial reality are flight simulators convincing enough to unnerve veteran pilots.

The medical community stands to benefit from artificial reality's educational potential. In an occupation that buries its mistakes, finding a more realistic teaching tool would seem to be an eternal quest.

Indeed, some doctors and information systems professionals see artificial reality as a tremendous educational tool. Others see it as just another wall of technology getting between physician and patient.

"It would be a fairly great advantage in rhinoplasty if [the program] is done right," said Dr. Bill Morain, professor of plastic surgery at Dartmouth College. Morain explained that there is "an infinity of options" in reconstructive nose surgery, and many of them can cause irreversible harm. "You can learn by doing 500 [operations] and screwing up 400 of them," he said. "It's hard to retrieve a nose once

you've butchered it."

A sophisticated program that accurately simulates bone, cartilage and skin could help a surgeon analyze each move, reversing incisions if necessary to create the best results, he said.

"There would be some applications for teaching, I suppose," said Bruce Kall, senior analyst for the Mayo Clinic's patient care systems in Rochester, Minn. Kall said it would be an advantage to show medical students "how things feel" during surgery.

A colleague, George Beeler, head of IS technology at the Mayo Clinic, dis-

agreed. Beeler said the level of sophistication needed to realistically simulate the human body is too expensive to program today and unlikely to become affordable soon.

"It isn't worth the bucks," he said. Current artificial reality hardware costs as much as $500,000. Programs already exist which render accurate three-dimensional drawings of a patient's anatomy, he said. Surgeons can use them to plan surgical procedures. They only lack the feeling of actually being there, which artificial reality promises to provide.

Other specialists have similar technical concerns, but remain optimistic that solutions can be found.

"I think the limiting step [for artificial reality] is going to be our ability to conceive of the problem," said Dr. Dan Masys, director of the Lister Hill National Center for Biomedical Communications in Bethesda, Md. The challenge for programmers will be encoding "the mind-boggling complexity of human anatomy," he said.

"It's certainly farfetched for 1990," Masys said, but if the current trend in computers continues, more powerful and less expensive systems should be able to perform the necessary functions in the near future.

Dr. Michael Goldberg, professor of neurology at Georgetown University, is also cautiously optimistic about the technology's potential. "I would think [artificial reality] would be quite useful," he said.

"I could see limited applications," Goldberg explained. "You might want to introduce [procedures] that way."

David Poehlein

Uses from the mundane to the sublime

A fields of science and technology would benefit from the ability to enter worlds previously relegated to two-dimensional drawings or simulated three-dimensional rendering on video screens.

Already, pilots and astronauts use versions of the technology to practice maneuvers that are impossible or too dangerous to perform in the physical world.

Highly accurate computer models plugged into an artificial reality system would provide engineers with

unheard of insight into mechanical failures. It would be possible, for example, to recreate and microscopically examine a disaster on the scale of the Challenger space shuttle explosion. Aerospace engineers could change their viewpoint to any position on a vehicle and watch theoretical events unfold.

Using artificial reality tools, chemical engineers would be able to watch chemical reactions up close. Very close. Engineers could reduce their viewpoint to a microscopic level, allowing them to "walk" through

and around molecular models as they move through complex processes.

More mundane uses include the elimination of manufacturing mockups. Rather than using a prototype computer-controlled welding machine to spot problems and limitations, for instance, artificial reality would allow the creation of a working model in a realistic setting.

Architects could design a building from roofing to drapery, allowing clients to change various aspects as they "walk" through a simulation.

JIM NASH

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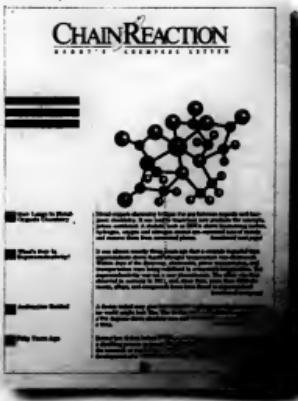
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EDITORIAL

Bad timing

A T A TIME when Americans are concerned about nurturing the few markets we still dominate, the Commerce Department is considering a proposal that would cut off a promising technology at the knees.

Commerce is reconsidering U.S. rules that restrict supercomputer exports to Western allies. They would apply only to machines that exceed certain performance levels. Currently, that limit stands at 100 MFLOPS (millions of floating-point operations per second). The department floated a proposal in January to raise that standard to 150 MFLOPS but backtracked in the face of howls of pain from the computer industry.

That outrage is justified. Ironically, the government is looking to set absolute performance standards for supercomputer exports at the same time that technology is surging ahead faster than anyone imagined even a year ago. For example, Intel claims its I860 chip can reach performance levels of 65MFLOPS. Cray Computer's forthcoming Cray-3 supercomputer is expected to run at about 16 GFLOPS, and NEC claims to be building a 22-GFLOPS supercomputer.

Absolute standards don't make sense in the middle of a technology whirlwind. Neither does listening to the hawks moaning about national security at a time when realities of the market — and the world — demand a new approach.

The fact is that the U.S. no longer enjoys superpower status where technology is concerned. The Japanese are already making denser memory chips and exploring X-ray lithography to achieve orders-of-magnitude improvements in chip design by the middle of the decade. European competitors are springing up to challenge the U.S. in mainsupercomputers. These companies operate under loose export guidelines that free them to sell into markets where U.S. makers can't.

Computer export controls are intended to keep state-of-the-art technology from falling into the wrong hands, where it may be used to build spy satellites or nuclear warheads. However, those goals need to be reconsidered. As Eastern Bloc countries lay bare their wounds, we are seeing pathetic situations in which governments can barely feed their people, much less invest in high-tech espionage. The Soviet economy is collapsing largely because it can't afford to sustain a high-tech defense horse race with the West.

The U.S. is no longer an unassailable technology leader, but a competitor in a world in which multiple economic superpowers are emerging. Our supercomputer export policies should reflect both that competition and the transfer of technology. The American Electronics Association has proposed to set export controls at 25% of the average of the two highest-performance supercomputers on the world market. While we don't endorse the AEA proposal specifically, it's a good starting point for discussion. Whatever rules are finally reached, they should be flexible enough to change as rapidly as technology does.

LETTERS TO THE EDITOR

Speaking out

I read with dismay your article called "Edging down the road to voice recognition" [CW, Jan. 15]. The computer industry and general public seem to have developed a futuristic fascination with the ability of a human being to talk to a computer — the idea of unlimited, real-time, interactive communications with a machine. While the "talking typewriter" is not yet ready for general consumption, voice recognition is by no means only "edging down the road" — at least not at Verbex Voice Systems.

You say that there is an invariable trade-off between the size of vocabulary that a system can understand and its ability to process words accurately. You also say that Dragon and Kurzweil are the only two firms that are currently marketing commercially accepted voice recognition systems that have large vocabularies (more than 1,000 words).

That is not so in either case. Verbex has already commercially installed continuous speech systems with a 10,000-word vocabulary and a 99.5% accuracy rate that responds in less than a half-second — even in high noise environments. Even an application with a relatively small vocabulary can recognize virtually unlimited sentences.

The point we want to make is that practical, powerful applications of continuous speech recognition do exist and are being successfully used NOW. We are not only edging down the road to voice recognition, but we have already arrived.

Mike Perkons
Vice-President, Marketing
Verbex Voice Systems, Inc.
Edison, N.J.

One more

Regarding Robert Glass' column in which he speaks of "Buzzwords of the '90s" [CW, Feb. 5], I think there is at least one more category of buzzword-generating idea-pushers: the enhancement request committee, nontechnical user-managers who attempt to describe what they want in a system without really knowing it themselves (totally aside from the question of whether what they want is actually beneficial).

The last few months of enhancement non-specification have been strewn about with a word that ought to win this competition hands-down; in fact, I hesitate to describe it for fear of its catching on elsewhere.

Ever hear of "proactive"? It means "active, only more so." "Proactive selection" refers to having the system automagically (sic) select the wanted items, more actively or intelligently than the current (already active) selection. There is "proactive restriction (of costs)," "proactive this," "proactive that."

I hereby proactively nominate this candidate for the buzzword of the '90s on the basis on minimal actual meaning and maximum versatility. After all, isn't that what buzzwords are all about?

Thomas D. Barringer
President
Troll Enterprises
Malden, Mass.

Around a while

In response to "The 1980s: A retrospective" [CW, Dec. 18], Glenn Rifkin refers to McDonnell Douglas as a "nontechnology giant" who "decided to enter the business and turn our

huge internal investments in technology into profit centers."

As president of McDonnell Douglas Systems Integration Co., I submit that McDonnell Douglas is a longstanding and respected giant in the technology industry. Our company has been instrumental in the development of aircraft, missiles and space technology for many years. From the 1950s, our information specialists have worked to make our company a technology leader and an aerospace giant.

In March, McDonnell Douglas Systems Integration Co. will celebrate 30 years in the information systems business. Our commercial information systems efforts grew out of McDonnell Douglas' internal systems needs, first with McDonnell Aircraft and later with Douglas Aircraft, the space systems and our missile systems.

During our 30-year history, we have seen the information systems industry grow and change just as we have grown and changed over the years. The decade of the 1980s was no explosion in the field, as your article so aptly states. We at McDonnell Douglas are proud that we were among the first to enter the field, and we continue to respond to change in the industry.

F. Mark Kuhlmann
McDonnell Douglas Systems Integration Co.
Hazelwood, Mo.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax: (508) 875-8931; MCI Mail: COMPUTERWORLD.

Takeovers are not to blame

**ALLEN MICHEL and
ISRAEL SHAKED**

The era of the corporate takeover is coming to a grinding halt. The merger excesses of the 1980s are being replaced by the '90s view that takeover is a dirty word. Congress, the media, banks and the marketplace have all turned against acquisitions — the corporate villain of the past decade.

Not surprisingly, the computer industry has been an integral part of the takeover movement, and it is also not surprising that the role of takeovers in the industry is coming to a virtual standstill.

During the '80s, companies such as Burroughs, Sperry, Apollo, Cullinet, Computervision, Prime and hundreds of other computer-related firms were either merged or taken over. Indeed, when the merger wave initially hit the industry, it was a shock to many. During the '70s and early '80s, price-to-earnings ratios of companies whose firms were much higher than those of the average industrial firm, making takeovers of these firms too expensive to finance prudently.

In the mid-1980s, the struc-

Michel and Shaked are finance professors at Boston University School of Management and co-authors of The Complete Guide to a Successful Leveraged Buyout.

ture of industry prices changed. Price-to-earnings ratios in the industry fell, and virtually overnight firms in the industry became vulnerable.

Many observers suggested that because of particular problems associated with takeovers in the computer industry, such transactions would never become commonplace.

Yet soon it became evident that the powerful force of economics would overcome any technical problems relating to the merger process. Indeed, forces prevalent in other industries were also prevalent in the computer industry.

While mergers were taking place, many economists and businesspeople suggested that merger mania was an unproductive use of capital spurred on merely by corporate America's greed and thirst for profits. Increased productivity, not corporate takeover, they argued, is the key to a competitive America.

What's missing from the discussion is the evidence. Because of a lack of data, both practitioners and scholars have not been able to compare pre- and post-merger corporate effectiveness. At the very least, a pre-merger analysis comparing the performance of takeover targets with industry peer firms not taken over is warranted.

We recently studied the results of the corporate mergers described in *Business Week's* top 200 deals of 1987. Our results suggest that takeovers play an integral role in the U.S.' drive to increase productivity.

For each firm in the final sam-

ple, a peer group was constructed, matched by industry and size. We compared firms that were taken over with their peer groups during the three years prior to their takeover.

The results are clear. Prior to

being taken over, those firms were less efficient and less profitable than their industry peers. Differences existed between the two groups in labor productivity, capital utilization, investment in research and development, debt ratios and profitability. The evidence suggests that takeovers are often attempts to revitalize industry laggards.

Consider the data. First, let's assess labor productivity as measured by sales per employee.

Three years prior to a takeover, the peer groups had higher labor productivity 64% more often than the merged companies. Two years before a takeover the peer groups outperformed merger targets 47% of the time and one year before 29% of the time.

Capital utilization, or asset turnover (calculated as the ratio of sales to assets), results were

similar. Asset turnover was greater in peer groups in 27 out of 38 cases.

The R&D results were even more dramatic. In the three years prior to the takeovers, the peer groups outspent targets for R&D by 2.4-to-1, 4.3-to-1 and 3.3-to-1, respectively. Our study suggests that those firms spending relatively little on R&D compared with their industry counterparts make attractive targets.

Finally, based on virtually all measures of profitability used in the study, target companies were less profitable than their industry peers. It is hoped that studies such as ours will shift the merger debate back to the issue of performance. Competition, not acquisition, kills companies. Based on our experience and the analysis of the data, acquisitions in the computer industry have the potential to improve productivity and U.S. competitiveness. Yet it is important that the deals be fairly priced and prudently financed. For example, in the Burroughs-Sperry deal, the plan was flawed. Large systems soon gave way to desktop workstations, and the open system architecture, on which the plan was based, gave way to increased price competition and lower prices.

In contrast, several acquirers have had notable success. As an example, ASA International in Salem, N.H., has acquired companies selling turnkey systems at reasonable prices and with a well-defined acquisition plan. They keep the old management in place and take advantage of a significantly renewed effort in the aftermarket.

In an era of global competition, corporate survival depends on efficient and profitable operations. Without the benefit of takeovers, the corporate equivalent of Darwinian selection will remove those least able to compete. With takeovers encouraged, struggling companies may again have the opportunity to perform successfully. To the extent that we are serious about competing effectively in the marketplace, we should consider acquisitions a necessary part of the free market system.

IBM: Cautiously stepping into change management

IBM WATCH

DARYL CONNER

As the largest computer maker, IBM frequently takes the rap for the failure of information technology to greatly improve the productivity of employees or companies.

Until recently, IBM has done little to challenge this image. Like the rest of the computer industry, its promotions have dealt more with the issue of technology than with the need of real productivity benefits.

Conner is president of ODR, Inc., an Atlanta-based change management consulting firm.

However, times seem to be changing. Two recent senior-level programs conducted by IBM, one in the U.S. and one in Brazil, indicate the company does understand that the human aspects of systems implementations go beyond the lip service given to the subject at the typical "Managing Information Technology as a Strategic Resource" conference.

The first of these programs is IBM's client executive officer class, held annually at the company's Customer Education Center in Palisades, N.Y. This exclusive seminar, which brings together 50 CEOs and presidents from some of the largest companies in the U.S., now makes the human aspects of technological change a point of major focus.

For the past two years, much of our own presentation to this group,

"The Role of the CEO During Technological Change," has dealt not with the technical capabilities of hardware, or even the role of information technology as a planning tool, but with corporate culture, the principles of change sponsorship and how to identify the sources and forms of resistance to change.

However, perhaps the most ambitious of these types of programs is taking place not in the U.S. but in Brazil.

IBM-Brazil recently launched a major marketing and education effort aimed at the chief information officers of its largest customers. According to program administrator Maurice Cazes, the goal of the "Information Technology Management Institute" was not to dazzle the senior managers with technical wizardry but to show them how

to implement ideas.

Twice during 1989, IBM asked various groups of CIOs to disengage from their businesses for a full month to talk about "the human aspects of change." This program included courses conducted by experts from Nolan, Norton, IBM, the University of Southern California and my firm, ODR. Topics included intergenerational dynamics, strategic planning, and change management.

Of course, two exclusive, senior management-only programs do not necessarily mean that change management is the latest rage at IBM. They do indicate, however, an important broadening of perspective. Nobody believes that IBM is not still interested in pushing hardware into information systems shops. However, it's acknowledgement that change management is a major concern of these IS shops represents a shift in the way IBM relates to its customers.

Of course, the real strength of IBM's commitment to helping its

customers manage the human aspects of change is yet to be seen. Change management must be made a part of the services it offers not just to CEOs and CIOs but also to those with systems implementation responsibilities throughout an organization. IBM is taking steps in that direction: Its New York Customer Education Center offers a regular course on change management.

However, its programs are lagging behind other companies. DEC, for example, actually has a 10-person change management department that works on internal implementations. DEC is currently considering a plan to take change management to its customers.

So IBM does have some catching up to do. Ironically, it is IBM's characteristic caution at adopting new ideas that underscores the importance of these CEO and CIO classes, not only in the transformation of IBM's image but also in its legitimization of change management as a strategic management function.

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TRUER BLUE.

HARD TALK

Rosemary Hamilton

Real issues, odd answers

The Yankee Group recently ran a conference in New York on outsourcing, definitely one of the most trendy topics lately.

And one of the more interesting, if not downright odd, presentations came from IBM.

Unfortunately, IBM spent more time talking about outsourcing as a friendship than talking about what the real business issues are.

Please correct me if I'm wrong, but outsourcing, like nearly all other activities in this industry, is a way to make money. That's why the vendors are in it.

Users know this and find a way to benefit from it while the vendor makes a buck. It's an age-old concept. That's how it should go with outsourcing. To call it anything else, particularly a friendship, doesn't do anyone any good.

But David McDowell, president of IBM's National Service Division, delivered this message of outsourcing friendship at the conference late last month. I have to question what value that had for users in this particular audience or for any user tak-

CA follows integration trend

Computer Associates International, Inc., vying for position in the automated operations arena, has been integrating the individual components within its Unipack software and further tying those components to members of other Unipacks, including security software.

In the cross-integration among distinct Unipacks, CA has been participating in, and sometimes leading, a larger trend toward automated production control.

According to Arnold Farber, president of Farber & LaChance, Inc., a Richmond, Va.-based consulting firm specializing in unattended operations, CA is by no means alone in the integration of data center automation software — which ties scheduling interfaces into tape

management, restart management, console automation and output management software.

Nevertheless, George Kurtz,

possible for users to keep up with the bits and bytes of each product on the market. "Right now, there are still a lot of islands

At the table

Computer Associates' CA-Unipack/APC are designed to provide centralized data center management services to CA's various software lines
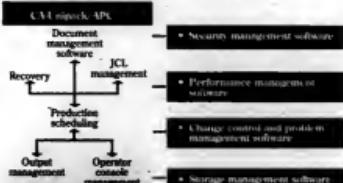
Source: Computer Associates International, Inc.
CW Chart: John York

namically integrate their data center."

The bevy of players in the arena divide into two camps — those that offer strategies built on acquisitions and those that built their systems on common platforms. Carrying out the integration with different products — the tack taken by CA, Legent Corp., Unitech Software, Inc., Candle Corp. and Goal Systems International, Inc., for example — tends to take more time bringing integrated products to fruition, Farber said. Other players, such as Tone Software Corp. and Scientific Engineering of America, have claimed success at developing in-house products with the same tech-

Inside

- Mattel's project management system keeps babes in toyland. Page 31.
- DEC says Posix promises will soon be fulfilled. Page 31.
- VMS 5.4 comes out of the wings. Page 32.

Mergers spawn development changes

Like a tornado whisking across Florida, Southeast Bank NA in Miami has purchased four major banking institutions in four years, absorbing them into its rapidly expanding corporate structure. To maintain this momentum, the bank relies heavily on a custom software program

for integrating data from acquired banks.

"The software shortens the overall conversion process by as much as two to three months per program," said Raul Marzunch, vice-president of information systems at Southeast. Prior to that, converting applications reportedly took an average of six to seven months each.

Up until a few years ago, Southeast Bank performed no in-house software development,

said Tom Blodgett, the bank's senior vice-president of IS. "When we bought out the Bank of Miami in 1987," he recalled,

Southeast Bank

"we brought over their entire data processing department. It was an unusual move at the time, but we were extremely impressed with their in-house de-

velopment expertise."

Credited with success for the software end of the conversion, Marzunch and Joe Carrion, Southeast's vice-president of software services, were both Bank of Miami executives when Southeast stepped into the picture. "At the time, Southeast was practically hand-writing each program for conversion," Carrion remembered. "There was no standardized system in place."

With a bit of brainstorming and an application development

TRUSTED.

Mattel game plan: Stay on schedule

BY AMY CORTESE
CW STAFF

HAWTHORNE, Calif. — The toy-consuming public is a fickle lot. This year's hot-selling Teenage Mutant Ninja Turtles may be relegated to the bottom of the toy chest by next year. In this fiercely competitive market, crowded by flashy new entries, industry veteran Mattel, Inc. is fighting back by getting back to basics with a new project management system.

After a decade of forays into diverse and sometimes unsuccessful toy lines such as electronic video games, "plush" toys and mad scientist kits, Mattel is refocusing its efforts on the tried-and-true products. Those classics include Hot Wheels cars and the fashionable Barbie doll, who just celebrated her 30th birthday but does not look a day over 19. Every second there is a Barbie sold somewhere in the world, Mattel estimated.

However, this back-to-basics strategy is anything but simple. There is an entirely new Barbie line introduced each year, with an average of 250 associated items. For instance, this year thoroughly modern Barbie joined the Air Force, complete with fighter jet, cropped hair and a uniform befitting the role. Furthermore, Mattel said it plans to

project management system to streamline the process of getting products to market.

The mainframe-based project management system, by Project Software & Development, Inc. in Cambridge, Mass., is an integral part of the company's "Mattel 2000 Focus on Leadership," a comprehensive corporate initiative that addresses product

Barbie is part of Mattel's back-to-basics strategy

manufacturing and management strategy to build a more efficient, competitive Mattel. Through expense control, asset management and a focus on core products, the Mattel 2000 pro-

makers in 1985.

In this highly seasonal industry, getting products to retailers' shelves in sufficient quantities is critical to success. Like other toy-makers, about half of Mattel's business for the year is done in the three months preceding Christmas. Mattel does not help itself or its retailers if a hot new toy hits the store shelves too late for Christmas.

"The toy industry is not viewed as reliable by retailers," explained Zaf Sutarwala, director of operation systems at Mattel. "We want to be the most reliable supplier."

Sutarwala said he expects the project management system to dramatically improve schedule adherence, an important measure of project starts and completions in the toy industry. Currently at about 60%, Mattel said it hopes to increase adherence to 80% to 90%.

The system, which will be online in July after customization is completed, replaces an older IBM product, Project Management System (PMS). According to Sutarwala, PMS had limited capabilities and was used for time scheduling but did not address resource requirements.

Therefore, every department maintained its own system, which they piggybacked onto PMS, leaving the central system out of date and inconsistent. As a result, Mattel experienced schedule slippages, Sutarwala said. "The different systems were islands," he added. "The idea was to integrate them into one system." After evaluating several packages, Mattel settled on PSDI's Project/2 in part because the large installed base of mainframe users were most comfortable with it in hands-on evaluations, Sutarwala said.

The software has ties to key information database under IBM's DB2 and runs on a Hitachi Data Systems Corp. plug-compatible mainframe and will support a network of personal computers and terminals. Nearly 400 Mattel personnel in areas as diverse as design, engineering, packag-

ing, tooling and management will use the system in their day-to-day work.

To address the needs of such a diverse group of users, Mattel is customizing the Project/2 screens to summarize information from the various perspectives of each group. For instance, manufacturing needs to know schedules for all toy lines to do capacity planning and to schedule production starts. Marketing personnel, on the other

hand, may want to view availability schedules of certain toys before committing to a retail customer.

Management is a prime candidate for the new system. "Currently, top management is always hunting and pecking for information," which often turns out to be inconsistent, Sutarwala said. Management will be able to use the system to look at scheduling adherence by their planning and revenue projections.

Integration of VMS, Posix slowly takes shape at DEC

BY JEAN S. BOZMAN
CW STAFF

NASHUA, N.H. — After years of promises, Digital Equipment Corp. plans to let VAX users blend their VMS and Unix application development work in 1991. That is when DEC will announce that it has integrated the

delays following establishment of the IEEE Posix 1003.1 standard in December 1988.

Throughout the computer industry, Posix is increasingly regarded as a "bridge" that will help programmers link proprietary and Unix applications for many vendors' product lines. Posix-compliant software could be

Strategic lynchpins

DEC client Posix as one of the key elements in blending together Unix and VMS applications development

*NAS-Compliant		*NAS-Compliant
• OSF's Motif		• Compound Document Architecture
• SQL		• Decwindows
• Posix		• Digital Naming Service
• ANSI C		
• OSI		
• Programmer's Hierarchical Interactive Graphics System		• Posix
		• System V Interface Definition
• Graphics Kernel System		• C
• Network Application Support		

Source: Digital Equipment Corp. *CW Chart: Marie Haines*

IEEE's Posix interface with its proprietary VMS operating system, industry analysts said.

DEC officials would not give a date when they will integrate Posix with the mainline VMS operating system, but industry analysts said they believe the move has been pushed back from 1990 to 1991 because of development

developed on one platform and run on all the others with little or no change.

"All the vendors need a bridge between their proprietary operating system and Unix, because much of their user base is rapidly moving to Unix," said Dale Kutnick, president of
Continued on page 35

DEC quietly boosts quality of VAX/VMS living

BY AMY CORTESE
and MARYFRAN JOHNSON
CW STAFF

MAYNARD, Mass. — As Digital Equipment Corp.'s new fault-tolerant computer hogged most of the media spotlight two weeks ago, the new VAX/VMS 5.4 operating system waited quietly offstage.

Yet while the VAXft 3000 got mixed reviews, some industry analysts said VMS 5.4 truly deserved the star billing.

"Most VAX users will benefit from something in that VMS announcement," said Roy Schulte, an analyst at Gartner Group, Inc. in Stamford, Conn. "The real underlying theme here is DEC trying to become strong in the commercial marketplace, where they've been way behind IBM."

Life is easier

From transaction management tools now embedded in the operating system to an "industrial-strength" interface that finally gives DEC a weapon against rival Oracle Systems Corp., DEC made life on a VAXcluster easier, cheaper and more reliable with VMS 5.4, analysts agreed.

Most of the applause for the new operating system goes to DECdtm, a new transaction management facility wedded to the VMS kernel. DECdtm enables the operating system to process transactions simultaneously on multiple databases. Keeping multiple nodes on a network in sync is one of the core problems of networked computing.

"By bringing more functionality into the VMS operating system, DEC is making it less expensive for third parties and end users to buy into the VAX/VMS architecture," said George Reid, director of information management at Sanford C. Bernstein & Co., Inc. in New York. "It's the kind of product that will help DEC sell its entire line of [transaction processing] products."

John Vottero, corporate systems manager at Crane Plastics, Inc. in Columbus, Ohio, said his firm is an unlikely candidate for a fault-tolerant VAX. "But the software is much more exciting," he said.

VMS 5.4's greatest appeal is the ability to do a two-phase commit across multiple DEC products and to incorporate distributed transaction processing functions into Crane's software, Vottero added.

"Right off the bat, DECdtm increases VAXcluster performance," said Robert Cameron, an analyst at Dataquest, Inc. Record updating that now gobbles as much as 5% of CPU resources can be done with no overhead by using the two-phase commit in DECdtm, Cameron said.

Two-phase commit is a crucial feature of on-line transaction processing (OLTP) and one that fault-tolerant competitors such as Stratus Computer, Inc. and Tandem Computers, Inc. have offered for years. Two-phase commit ensures that two databases, often on different network nodes, are consistently and instantly updated when a transaction occurs.

Also critical to DEC's success in commercial markets is RDB, its relational database. As the cornerstone of the firm's plans to expand its VAX share of the OLTP market, RDB 4.0 has been enhanced to allow much larger databases and to spread those databases over multiple disks to avoid bottlenecks.

"This makes DEC the main software

rival to Oracle," said Terry Shannon, an analyst at International Data Corp.

Two of DEC's transaction processing monitors — Decintact and VAX ACMS — were also improved to support RDB for the first time, allowing them to "speak the same language," Shannon noted.

A transaction processing monitor such as IBM's CICS provides an environment for developing high-performance transaction processing applications.

Both of DEC's transaction processing monitors now employ a faster version of Decforms, which has become the standard forms management software on DEC machines. Another improvement

likely to be popular with users is a change in VMS volume shadowing that allows any disk attached to the operating system to be mirrored or shadowed through the VMS host. In the past, only high-end VAXs with hierarchical storage controllers could do this.

Host-based shadowing actually gives DEC a jump on mega-rival IBM, "which is just coming out with controller-based shadowing capability," Schulte said. "DEC is giving customers more options in maintaining mirrored data."

Other new and enhanced software tools introduced with VMS 5.4 include the following:

• Rdbexpert, an artificial intelligence-based tool for designing databases. At a base price of $12,750, Rdbexpert allows users to tailor their own databases to specific volumes and types of transactions. While IBM users can buy similar tools, mainly from third-party vendors, Rdbexpert is the first such tool to use AI features, analysts said.

• Dectrace for VMS, an application-level performance monitor that costs $3,427.

• Decscheduler for VMS, priced from $750 to $31,400, automates the execution of repetitive production jobs.

"When DEC talks about 'The network is the computer,' it needs to prove that it's not just a sales pitch," Schulte said. "They should be given credit for actually starting to deliver it."

Hamilton

ing a look at outsourcing. What they need is information on what outsourcing is really like in order to help them make real decisions. McDowell recommended that users "celebrate the partnership together" with their outsourcing providers. He recommended getting to know people socially because "friends work better together." This isn't exactly bad advice, but is it really the point?

Then came the topic of Eastman Kodak, in which both IBM and third DEC, as well as Businessland, are outsourcing providers. First, McDowell says there were all friends and would trust one an-

other. Then he was asked what the relationship was really like, and if there was confusion among the users regarding whom to call when a problem came up. McDowell said it didn't matter who the user called because "we're all in it together, and we need to make it seamless."

Well, OK. I'm sure McDowell's people from NSD are working hard to make outsourcing work, and one of the things they have to do is at least get along with competitors.

But the bottom line is, these outsourcing people are competitors. For users evaluating outsourcing, this must be a concern.

One of McDowell's most frank answers came when he was asked what

would happen if a user had IBM and DEC as outsourcing providers at the best and then needed to make a purchase of new midrange equipment. Would the outsourcing relationship be used to influence purchasing decisions?

McDowell said he couldn't guarantee that his NSD people wouldn't have a biased opinion on systems. On the other hand, he stressed that nobody in outsourcing is motivated by a benefit to the sales team.

That, at least, is IBM giving its word that it will try to keep the two issues separate. That is one of the real questions that users need real answers to.

Posix

Meta Group, Inc., in Westport, Conn. "The reason users would buy their Unix gear from a Unisys or an HP or a DEC is for whatever added value they offer or the affinity users have for their installed product, what I call the 'surround' strategy."

A Posix interface on VMS means that VAXs would become more compatible with the proliferation of Unix workstations — including DEC's own Decstation 3100 — that run industry-standard Unix applications. As it is, users have to dedicate their VAXs to host either the VMS or the Ultrix operating system, which is DEC's version of Unix. Ultrix already supports Posix, DEC said. IBM and Hewlett-Packard Co. have also pledged nearterm support for Posix — as have the Open Software Foundation and the X/Open Consortium Ltd. standards group.

The current Posix 1003.1 standard, finalized in late 1988, will be required for future federal procurement contracts, virtually guaranteeing widespread vendor support. Posix is only one element of a common programming environment, Katnick said; others include a common graphical user interface and a common application programming interface.

Double up

As it is, DEC users need to develop double applications — creating a strain on DEC's marketing forces, which are trying to promote Unix in DEC shops, analysts said. The users' reluctance to choose between operating systems could be eased by avoiding parallel application development through Posix.

DEC might have made its Posix move sooner had it not been for unforeseen development delays. "Originally VMS-integrated Posix was due out this year [1990]," said Terry Shannon, director of the DEC Advisory Service at International Data Corp. in Framingham, Mass. "But recently, they've been talking about releasing it in early 1991."

Once Posix is supported on VMS, users may find it easier to take DEC's double-barreled sell of VMS and Ultrix devices. "DEC can have its cake and eat it too," Shannon said. "VMS is a very potent account-control tool. But with Posix, they'll finally be able to integrate the VMS and Unix application environments."

Some large DEC sites are, in fact, looking forward to the VMS/Posix merger as a time-saver for applications development — but they are not holding their breath about when it will become available. "It would help us a great deal," one New York-based DEC user said, "but we'll be doing our own custom integration until it comes out."

The director of a DEC's Posix program told *Computerworld* that it was critically important — both competitively and for DEC's mixed VMS and Ultrix operating environments — to release it soon. "We view Posix as one of the cornerstones for providing a portable environment for applications development," said Gordon MacGregor, Posix development manager at DEC's Software Development Facility.

Even though Posix supports Unix applications, there may be some variance with standard AT&T Unix System V procedures. "There's a very, very large common subset, but there are some minor variations [between System V and Posix 1003.1]," MacGregor noted.

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COMPUTERWORLD

Mergers

program — Mark IX from Sterling Software, Inc.'s Answer Division — Marxach and Carrion created a package that is estimated to save the bank more than one man-year per conversion procedure. They had previously been using Mark IX at the Bank of Miami as a primary application development language and a file handling system.

"During the conversion process, programs had to be repeatedly rewritten into existing assembler programs — a difficult task," Carrion noted. Using Mark IX, an intermediate data format was created to speed up the process.

Marxach said the layouts are fed into the intermediate data set, which defines all data elements into Mark IX. Tapes from the procured bank are then loaded into the system and a field-to-field analysis that compares sets of code is done. Once the user gives us specifications, Marxach said, "we take the data into commercial loans, installment loans, CDs, savings and demand deposit accounts."

"What it means is that we don't have to repeat all the assembler, and no extensive modification is needed," Carrion added. "One set of assembler codes suffers very little from conversion to conversion, and once they are fed into the accounting sys-

tem, most of the work is done."

The developer has to rewrite only the front end for each conversion on an IBM plug-compatible mainframe, and Marxach, emphasizing that it is very important for the bank to avoid duplicating account numbers during a conversion. To circumvent this, an account number conversion algorithm is inserted up front into each application before it is loaded into the intermediate system.

The program currently resides on Southeast's Hitachi Data Systems EX90, running under IBM's MVS XA operating system. The bank uses several other applications created with Mark IX, including on-line data entry for general ledger, a loan accounting module, a branch auditing system and an on-line customer service program for the credit-card bureau, which reportedly processes more than one million transactions per month.

The EX90 is responsible for all of the bank's 90-plus applications, including payroll and human resource functions, and supports approximately 5,000 on-line terminals. Southeast went from assets of $12.5 billion to over $16 billion in four years and grew its payroll from 7,300 to more than 8,000 employees during that time. It is one of the fastest-growing banks in Florida.

Mark IX will support mainframe application development for all IBM operating environments in on-line and batch modes.

Integration

nological underpinnings.

However, data centers have histories with the various products, and "users have to ask themselves where am I today, how am I using them, and where am I going tomorrow," Farber said.

According to Farber, CA's size contributes to its competitive advantage. "CA's inventory of products allows them to offer something to everyone," he said. "But for every unique feature CA offers, another vendor offers a unique feature that CA doesn't."

Last month, CA announced enhancements to its CA-Unipack/Automated Production Control (APC) software, including the immediate availability of CA-Opera 2.0, an automated console and message-management system; CA-Opera/X, a Compaq Computer Corp. 386 E-based adjunct to CA-Opera, presently in beta testing; and the intention to place CA-APC Difference Detection System (DDS), a rule-based automated file balancing system, into beta testing in the first quarter of 1990.

In addition, the company said that it has integrated CA-APCDDS with its Unipack/APC scheduling products, CA-7 and CA-Scheduler, as well as with both Opera products and CA-email.

CA-APCDDS has also been integrated with CA-Netman Release 4.8, a component within CA-Unipack/DCA, which the company last month said will enter beta testing in the second quarter of 1990. A problem, change, inventory, configuration and financial management system, CA-Netman interfaces with IBM's Netview and CA/Dracom/DB. CA-Netman also assists Help desks by automatically

opening-problem tickets through a machine-generated problem tracking component and by calculating systems availability and vendor response time.

According to CA, integrated software will offer data centers several strategies. For example, with the CA-APCDDS tied to scheduling software, the balancing software can automatically send a command to the scheduling systems to continue operations once a balancing job is completed. If an out-of-balance condition — as defined in the rule-based system — exists, the software will send a signal to the scheduling systems to halt processing.

CA-APCDDS costs between $15,000 and $37,500, depending on mainframe size. Opera/PC is priced at $22,000. The Unipack/APC costs between $132,000 and $210,000, depending on processor size. CA-Netman sells for $54,000.

Bill Stauter, manager of processor management at International Paper in Memphis, has used CA-Opera with other CA data center software — CA-Netman, CA-Scheduler and CA-Dispatch — for about three years and is content with what he has.

"In general, we are attempting to eliminate human intervention," Stauter said. "The more we do that, the more we eliminate the delays, expense and hassle caused by human error."

Stauter said that use of the CA packages has helped him reduce head count within the operations. "The main reason that I still like it over a lot of the other products is its ease of use."

George Rodriguez, assistant vice-president of operations at Capital Bank in Miami, has had CA-Opera/PC in beta testing for about a month. "If a problem occurs, CA-Opera/PC will attempt to activate automatically or notify personnel on call via beeper," he said.

NEW PRODUCTS — SOFTWARE

Applications packages

Britz Publishing, Inc. has announced the Money Manager library system for IBM System/36 and Application System/400 platforms.

The package provides several programs, including mortgage payment, maximum mortgage principal, interest rate on a mortgage, current value of a future amount and rate of return on an investment.

It costs $39, plus $6 for shipping and handling, and is available in diskette, tape cartridge or open-reel tape format.

Britz Publishing
P.O. Box 1156
Madison, Wis. 39130
800-255-2028

Ramyk Consulting Group, Inc. has released a billing system based on McCormack & Dodge Corp.'s Millennium technology. Dubbed Mbill, the software runs in a mainframe environment and is fully integrated with the M&D Accounts Receivable package.

Mbill reportedly automates invoice request functions, approval and printing of invoices and credit memos; it also maintains product, pricing and sales data. A

first-copy license is priced from $25,000, and customization services are available.
Ramyk Consulting Group
Suite 618
26211 Central Park Blvd.
Southfield, Mich. 48076
313-358-8787

Computer-aided software engineering

Advanced Technology International, Inc. has announced an integrated computer-aided software engineering (CASE) interface. Called XL/Supercase, the software provides a link between ATI's Supercase product for real-time development and maintenance and Index Technology Corp.'s Excelerator/RTS engineering ap-

plication CASE tool.

The interface generates Supercase templates and code in Ada, C, Fortran and other programming languages directly from the Excelerator/RTS graphs. The product provides full requirements traceability functions and is priced at $8,500.
ATI
Suite 1314
1501 Broadway
New York, N.Y. 10036
212-354-8280

A set of rule-based tools designed to automate the re-engineering process of existing applications has been announced by Interport Software Corp.

The Intersane Reverse Engineering Workbench operates on any platform that supports a standard C compiler and allows software engineers to migrate database definitions and programs to a variety of target environments. These include computer-aided software engineering repositories, different hardware platforms, client-defined dictionaries and a structured database repository supplied with the product.

A site license fee is available for $98,000.
Interport Software
Suite 270
6035 Burke Centre Pkwy.
Burke, Va. 22015
703-425-6425

NEW PRODUCTS — HARDWARE

Robotics

Hudson Robotics, Inc. has announced the SRS-M2 Small Robot System, an upgraded version of its SRS-M1A Robot System.

The system features a maximum payload of 4.4 pounds and repeatability of plus or minus 0.002 in. The robot arm provides a 22-in. reach and a 2½-sec. maximum cycle speed for 12-ft. by 2-in. pick-and-place applications, the vendor said. The product can be programmed with its English-based RAPL-II operating software or with a proprietary Total Control Software package.

The SRS-M2 comes equipped with RAPL-II software for $21,000. Total Control Software can be purchased separately for $3,290.
Hudson Robotics
44 Commerce St.
Springfield, N.J. 07081
201-376-7400

I/O devices

Bull H. N. Information Systems, Inc. has expanded its line of nonimpact printing devices with the announcement of a medium-speed, magnetographic cut-sheet printer.

The MP5050 can print letter-size sheets in either simplex or duplex modes at a rate of 50 page/min., according to the company. It can function as an optional component of Bull's recently announced Series 3000 printing systems.

The MP5050 is priced at $110,000. Availability is scheduled for the second quarter of 1990.
Bull H. N.
200 Smith St.
Waltham, Mass. 02154
617-895-6000

PCs & WORKSTATIONS

Controversy boils over MMA's endorsement

ANALYSIS

BY RICHARD PASTORE
CW STAFF

Though user groups have occasionally flexed their muscles with vendors, they have rarely tackled the issue of hardware standards. Last month, the Microcomputer Managers Association (MMA) did just that, endorsing a format for the emerging technology of high-density floppy disk drives.

However, the MMA's pronouncement has not exactly been received with open arms. Industry observers and user group spokesmen have been quick to question the validity and appropriateness of the effort.

After eight months of reviews and ratings, the MMA standards committee chose the 20.88M-byte form factor developed by Insite Peripherals in San Jose, Calif., from among six incompatible drive designs and three working prototype models.

Using various innovative positioning and writing techniques, these high-density drives can store significantly more megabytes of data on a 3½-in. floppy disk than today's standard 1.44M-byte drive.

However, the three operating drives that were made available to the MMA for testing — Insite's 20.88M-byte drive, Nippon Electric Co.'s 9.3M-byte drive and Toshiba Corp.'s 2.88M-byte drive — were so incongruous that comparison is of little value, claimed James Porter, president of Disk/Trend, Inc. in Los Altos, Calif. "It's a severe case of comparing a watermelon, an apple and a grape," Porter said. "I don't think they know what they're doing."

The Micro Managers Association opted to endorse a 20.88M-byte standard for a 3.5-in. floppy drive rather than 9.3M-byte and 2.88M-byte drives of competitors.

Committee Chairman Brian Livingston acknowledged that the drives were dissimilar, but he said the group's mission was not to get drive against drive but to recommend a single format

Continued on page 41

For 1-2-3/M, love before first sight

BY PATRICIA KEEFE
CW STAFF

WESTBORO, Mass. — 1-2-3/M may have gotten off on the right foot even before Lotus Development Corp. announced availability, according to a recent report.

A survey of 717 information executives, completed prior to the unveiling of Lotus' mainframe-based spreadsheet, revealed that 1-2-3/M had already gained enough mind share among users of mainframe spreadsheets to be tied for second place in 1990 purchasing plans.

The survey, conducted by Sentry Market Research (SMR) in Westboro, Mass., lists Computer Associates International, Inc. (Supercalc and Megacalc) as the mainframe spreadsheet market leader, having garnered 22%

of purchasing dollars. Lotus follows in a tie with Access Technology (20/20), both logging in at 13% each. Third place went to Trax Softworx (ESS), with 9% of those dollars.

"It's unprecedented for a product to achieve this level of user acceptance prior to first deliveries," claimed SMR research director William A. Gannon Jr.

An additional 22% of the respondents said they were undecided about their spreadsheet purchasing plans, which could provide 1-2-3/M with a window of opportunity.

"If nothing else, the delivery of 1-2-3/M is breathing some new life into this [mainframe spreadsheet] market," Gannon said. He said the market will remain a niche segment, however. "Lotus recognizes this product will not be a major contributor to its bottom line," he added.

His comments dovetail with those of analysts and users interviewed recently by *Computerworld*. Most were skeptical about the need for mainframe-based spreadsheet computing and typically cited financial modeling or data consolidation as primary uses for such a package [CW, Feb. 26].

Overall, Gannon estimated that roughly 10% of the IBM mainframe sites are running a mainframe spreadsheet today. In terms of installed base, the survey found CA and Trax running neck and neck in the lead, so it appears that Trax may be losing some ground.

SMR conducted a related, separate survey about the desktop spreadsheet purchasing plans of 827 Fortune 1,000 sites. The results echo those of a recent study by Sierra Group, Inc. [CW, March 5].

Both studies found 1-2-3 sales on the desktop have plateaued at about 70% and may actually be slipping a percentage point or two. Microsoft Corp.'s Excel is said to have between 13% and 16% of the installed base, and based on these studies, it seems likely to gain as much as 4% to 5% in market share over the course of the year. Borland International's Quattro Pro is a distant third.

Inside

- Manufacturers Hannover goes diskless. Page 39.
- Canon gains speed in imaging market. Page 39.

Where's more power and speed when you need it?

family.

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generation of RISC technology, and the heart of the RISC System/6000 family. POWER Architecture gives you up to four instructions per cycle, and it has a CMOS microprocessor built right in that leaves others in the dust. Plus, there's massive memory (up to 256MB) linked to the processor by high-speed internal bandwidth that handles data up to 480MB per second—so the POWER processor is free to attack larger tasks. All of which means solving a complex problem doesn't mean a long wait anymore.

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needs lots of data transfer muscle, too. So we gave all these systems a new implementation of the Micro Channel bus with I/O throughput of up to 40 megabytes per second. And that's just the beginning. There'll be future implementations of Micro Channel that can double and even quadruple that data transfer capability, making the traditional, nonexpandable architectures seem primitive by comparison.

Add to all this the ability to take advantage of Micro Channel cards and adapters, IBM's new 320MB and 857MB high-performance disk drives and high-speed POWER processing, and throughput bottlenecks are ancient history.

3D graphics performance

Rock-solid support for all UNIX
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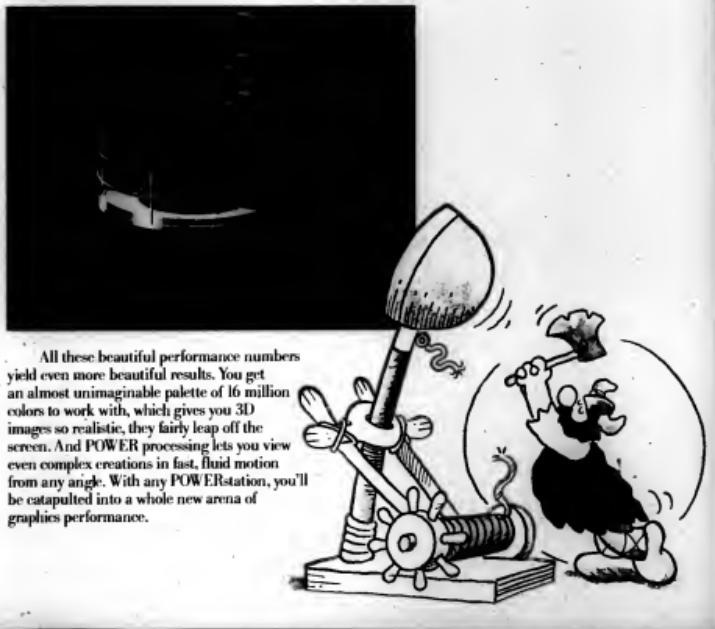
All these beautiful performance numbers yield even more beautiful results. You get an almost unimaginable palette of 16 million colors to work with, which gives you 3D images so realistic, they fairly leap off the screen. And POWER processing lets you view even complex creations in fast, fluid motion from any angle. With any POWERstation, you'll be catapulted into a whole new arena of graphics performance.

Weeding out virus makers

The other day an envelope arrived from Singapore containing some electronic paintings from a would-be Scandinavian Monet. The disk also came with a virus called the Byte Warrior.

Fortunately, there are antiviral programs, and, like penicillin, they work on a lot of the more common viruses. The Byte Warrior was soon gone, blasted to bits in the same manner as were two other recent contagions.

The Byte Warrior, it turns out, is a fairly innocuous bit of code — infectious, but not altogether harmful. That, however, does not lessen the sense of being violated.

The experience got me thinking. How can our computers make us feel so insecure? It isn't just computers. Whatever we don't fully understand makes us vulnerable. That is why auto mechanics can lie to us, lawyers can charge us $200 per hour, and doctors drive Porsches.

Because few of us, even seasoned IS vets, understand all their deepest inner workings, computers are a perfect breeding ground for code-writing terrorists. People who think they are smarter than us get at us through our computers.

Individuals and those who manage computers just want to be left alone. They don't want their computers invaded or broken or their data destroyed. And they'll string up anybody who tries it.

It's particularly upsetting when the invader damages or destroys our work. IS pros that run entire networks of systems have even more reason to complain. So we should all feel justified in seeking revenge.

That is why the recent trial and conviction of Robert Morris is such a victory.

The Morris incident changed our views forever. On Nov. 3, 1988, 23-year-old Morris destroyed any romantic notions we may have had about hackers. What used to be as admired art, breaking into computers, is now as taboo as wearing bell-bottoms.

We should both punish and thank Morris for his stupidity.

His virus, according to reports, didn't really destroy data

Doing away with hard disks

At Manufacturers Hanover, diskless PCs give new meaning to 'security'

BY PATRICIA KEEFE
CW STAFF

NEW YORK — Those who sneer at the diskless workstation are prone to dismiss it as little more than a mutilated personal computer or "gutless wonder." Yet at Manufacturers Hanover Corp., the diskless PC — when coupled with a Windows environment — has blossomed into a cost-saving and control-enabling wonder.

The network of high-powered diskless boxes has provided the financial institution with a high level of control and security it believes would not be possible otherwise.

"We basically deal in data, for which we have fiduciary responsibilities. Yet we were losing data and were likely to lose more at the same time more of it was becoming critical," Vice-President Arthur Block explained.

Worse, the industry has gone from an era of downloading data from the mainframe to actually creating and storing valuable information on the desktop. The

firm had to be able to access and control that information. A central repository does the trick, hence the server-based file system.

Block, just barely kidding, said his rule for system administrators is "that you back it up every night or you'll be fired the next morning."

On the user end, electronic

T HE 386 workstations will by no means be mistaken for a mere shadow of a PC.

distribution of applications and upgrades, as well as on-line help, have greatly simplified and reduced the cost of support. "Two-thirds of the cost of desktop computing is training and support," he said. Since users can only destroy or delete what is on their screens, the firm's financial data is essentially immune to any major user-instigated catastrophe.

Service costs are further contained by Block's decision to go with the graphical user interface of Microsoft Corp.'s Windows. Yet, "It was a leap of faith at the time [we chose it]," he said.

You might say Manny Hanny is a Microsoft shop — Windows/386, Excel and Word 4.0 are all standards here, as are Intel Corp. 80386-based diskless workstations. In addition, the financial institution also uses Dynacon's Futuresoft package to support 3270 and asynchronous connections to IBM hosts.

New users get Word for Windows and will most likely get Windows 3.0, which is slated for delivery in May or June, according to the industry rumor mill.

The 386 workstations will by no means be mistaken for a mere shadow of a PC. These boxes range in speed from 16 MHz to 25 MHz and come from a variety of manufacturers, based on the best deal available at the time of purchase.

There are no immediate plans to upgrade users to the 486 platform, nor is Block interested in a rumored, soon-to-be commer-

cially available diskless version of IBM's Personal System/2.

"One of the issues we had to contend with when starting up Infoset — our internal network — was no proprietary products," he said.

Recalling IBM's April 1987 introduction of the PS/2 line, Block said he was impressed by some of the technical advantages but was put off by the proprietary aspects.

"Essentially, you had [then-IBM PC chief Bill Lowe] saying that if anyone came near this technology, he'd sue them into oblivion," Block said.

Further damning the PS/2 was the lack of a 386-based model, never mind a diskless one, and supporting peripherals. Consequently, Block has chosen to stick with Industry Standard Architecture hardware.

All of his diskless boxes feature 4M bytes of random-access memory, 32-bit-wide data buses, VGA monitors and IEEE 802.5 Token-Ring cards. They are attached to a network running Novell, Inc.'s Netware network operating system. All that is missing is the hard disk, which Block maintains his users do not need.

Speedy scanner gets mixed welcome

BY JIM NASH
CW STAFF

An optical scanning engine that provides fourfold performance gains met with a muted welcome last week when two potential users warned that it has limited applications, while a third called the announcement significant.

Caere Corp. announced a 40M-byte CPU with a custom-made 386SX chip intended to recognize 220 to 700 characters per second, according to Larry Miller, vice-president of marketing and sales for Caere's office products.

Miller said Caere leveraged the standard four-coprocessor interface boards, allowing each board to recognize an entire page simultaneously, rather than having them act as a team to recognize a single page at a time.

The device, priced at $10,995, is scheduled to ship this month and supports Fujitsu Ltd., Microtek Lab, Inc. and Hewlett-Packard Co. scanners, he said. Dubbed Parallel Reader, it is compatible with Novell, Inc., 3Com Corp., Apple Computer, Inc. and IBM networks, and it operates on personal computers, minis and mainframes.

Miller said the target market includes government agencies, law firms, publishers — any enterprise with a high volume of paper processing and storage.

Vane Lashua, office systems manager at Readers Digest Association in Pleasantville, N.Y., said he foresees specialized uses for Parallel Reader. Its speed, he said, would make it useful for reading mailing lists or digesting large surveys.

Lashua said his office has led a test site for Caere competitor Calera Recognition Systems, Inc. optical character recognizers (OCR) in the past. He employs Calera as well as Kurzweil Computer Products devices. He said the Calera processes manuscripts of 50 pages or less for free-lance editors. He said that speed is not an overriding concern at Readers Digest.

"I want [an editor] to be able to put 50 pages in [the scanner], pick up a cup of coffee," Lashua said, "and pump the manuscript onto a floppy disk."

However, another potential user said that his existing scanner is fast enough, and that all he wants is the way of improved performance at greater cost recognition. Caere claimed that Parallel Reader will recognize any nonstylized font. Its current low-end OCR software package, Omnipage, recognizes font sizes from six to 72 points, in 11 languages. Omnipage will be standard in the new firmware, Miller said.

Meanwhile, Gary Jacobs, a Bechtel National, Inc. program-

mer, called Caere's announcement "significant." Jacobs, working out of Bechtel's Washington, D.C., office, is involved in the company's contract to process 40 million pages per year for the Securities and Exchange Commission.

"Those are good speeds," he said upon hearing Caere's figures.

Jacobs also expressed surprise at the device's price. Parallel Reader is expected to offer speeds comparable to high-end OCRs for about half the cost.

"What makes this announcement exciting," said Kerry Holch, an analyst at BIS CAP International, "is the price/performance ratio of the product."

Holch said she expects Parallel Reader to create a stir among low-end users who have found it difficult to justify buying faster OCRs that cost as much as $50,000. She also said it is "extraordinary" for an OCR maker to market the device through dealers as Caere intends to do.

With its announcement, Caere appears poised to ride a strong wave of new desktop scanner purchases. According to a recent report by Alex Brown & Sons, Inc., desktop scanner shipments by all manufacturers that year should double 1989's total of 100,000. The report predicted shipments to hit 300,000 to 325,000 in 1991.

And now, in the lead . . .

BY JAMES DALY
CW STAFF

FREMONT, Calif. — The race to provide the slimmest and fastest laptop computer recently bounded forward again when Grid Systems Corp. introduced an Intel Corp. 80386SX-based system weighing less than eight pounds.

The 7.9-pound Grid 1450SX also boasts a series of power management systems designed to extend battery life, company officials said. One feature, for example, shuts down subsystems not being accessed, while another allows users to tap the space bar and manually interrupt work for extended periods without turning the unit off. The fruition of these advances, Grid officials said, is that two batteries will power the unit for up to four hours.

The laptop also comes standard with a 640- by 480-pixel Video Graphics Array display as well as 1M byte of random-access memory, a 20M-byte hard disk drive and a 3½-in., 1.44M-byte floppy disk drive. A 2,400 bit/sec. modem can be added as an option. The Grid 1450SX costs $4,995 and comes with a one-year warranty and parts and labor.

Von Simson

a set of instructions.

But the need for a hit has not just hypnotized the hacks.

Typically frank, smart, tough-minded Jim Manzi can't even turn his back on Agenda, Lotus' own attempt to get into this sorry area. Lotus has gone back to work on the user interface; Manzi acknowledges that maybe the package wasn't so easy to use. But putting a new interface on project management software is like putting a new hood ornament on an Edsel.

Part of the scare is that the Wall Street investment hounds are baying for a

new hit. Most major PC software companies are trading at hugely inflated price-to-earnings ratios based on growth history, and investment reports are a near-consensus hold on everyone except Microsoft. The only reason that Microsoft is still rated a buy by analysts is an inexplicable faith that OS/2 is really going to take off. The stock price certainly isn't buoyed by the clamor over Word for Windows.

It doesn't stop there. Outside of some flavors of decision support software and a few niche vertical industry systems, the PC applications horizon is a broad wasteland. Groupware is being pitched as the way to bring out the power of the networked computer, sharing files and calendars and even little thoughts that

would not normally work their way into a formal meeting.

The idea is important, but, with two exceptions that are not from traditional PC developers, groupware completely ignores the way people work. Once you get past more colorful front ends for electronic mail, these systems are clumsy and awkward. They rely on a rigid structure that works counter to the way people communicate in their day-to-day lives. Proving that there is some justice in the world, they aren't selling.

Notable exceptions are Hewlett-Packard's New Wave, which abuts the groupware category with some elegant features, and Wang Laboratories' integrated imaging system, which integrates voice and image processing in a

way that is truly useful.

For now, the HP platform is still brand-new, and customers are rightfully concerned about buying anything but upgrades from financially troubled Wang. But it would be a shame if the ideas behind these technologies get lost in the shuffle.

PC software developers would do well to recognize the maturing nature of their markets and go to work on some vertical industry applications, an area where demand has been and still is strong. Sooner or later they are going to have to realize that the days of killer applications are over.

Von Simson is a Computerworld *West Coast senior correspondent.*

MMA

for the industry.

Without a single format, several incompatible drives will likely hit the market over the next two years, making it impossible for users to swap high-density disks from one type of drive to another. "What's worse, you might move the disk over to another machine and it will look like it's working, but you'll actually be losing data," Livingston said.

Though user groups concur that standards are ultimately necessary in the marketplace, some user group spokesmen said that standard setting does not fall in their bailiwick.

"User groups are not set up to set standards," said David Blumenstein, spokesman for the New York Personal Computer Users Group. "We exist to help users with existing software and technology."

Blumenstein added that if a group recommends a format that subsequently flops, the group's reputation will be undermined. "Vendors should be playing this game of Russian roulette; we have more to lose than they do," he said.

The MMA may have stuck its nose in a bit too early, according to Jonathan Rotenberg, president of the Boston Computer Society.

"When a technology is new, it's hard to really understand what all of the issues are going to be," he said. "It's too soon for the industry to rally around one standard in an area that still really hasn't established itself."

User groups have influenced vendors in the past, winning the abolishment of copy protection in such key software packages as Lotus Development Corp.'s 1-2-3. But observers do not give the MMA's recommendation much chance of success.

"The companies put a lot of money into R&D — you can't stop them from investing, producing or marketing. If it doesn't meet the standard, so what?" said Al Levy, a spokesman for the Long Island Computer Association.

The recommendation could have an effect, "but if the large vendors want to put something out, they will do so regardless of what users and the media say," Blumenstein said.

It appears he may be right. Toshiba America, Inc. is working on 4M-byte, 16M-byte and 32M-byte drives that will not be compatible with Insite's technology, said Bill Passavanti, Toshiba's director of marketing for floppy disk drives.

MICRO NOTES
Microsoft joins the Air Force

Microsoft Corp. said it will supply the personal computing environment and productivity software for the U.S. Air Force Desktop III contract that was recently awarded to Unisys Corp. The award encompasses approximately 250,000 PCs, 200,000 of which will run DOS, Microsoft Windows and a suite of compatible applications. The deal is expected to net Microsoft $25 million over four years and represents its biggest Windows contract.

ABCD: The Microcomputer Industry Association has implemented a standard warranty claim in an effort to eliminate more than 40 manufacturer-distinctive claim forms. The form is being used by suppliers such as AST Research, Inc., Epson America, Inc. and Hyundai Electronics America. Hewlett-Packard Co. uses an electronic data interchange application of the form.

"Understanding the RISC System/6000," an analysis of and guide to IBM's new line of AIX-based workstations and server, is now available from Firstgroup in Yorktown Heights, N.Y.

Let your mouse do the walking. Cambridge, Mass.-based **Digital Media** has announced the Macintosh Yellow Pages, an electronic, Hypercard-based "yellow pages" that lists Apple Computer, Inc. Macintosh products, publications and services. The $39.95 package is updated quarterly and includes an intuitive user interface and an animated tutorial. A CD-ROM version is slated for future release.

Barney

the way the really nasty ones do. Instead, it added a big layer of goop to the workstations it infected.

What he failed to realize, until his guilty verdict, was that destroying the ability to work is as wrong as destroying the work itself.

Morris simply succumbed to one of the most basic human desires: showing off. It worked; he got all kinds of attention. This notoriety created a very dangerous situation. Once you get Dan Rather and *Time* magazine talking about these viruses, you open yourself up to any thrill-seeking knucklehead with a basic knowledge of programming. Like the Tylenol poisonings, big headlines spur these yahoos to action, and we end up with more worm slime to clean up.

Fortunately, we are a lot smarter now. Thanks to Morris, IS is now more protected, with backups, software standards, software delivered by secure servers and the skills to defeat many of these viruses. Most importantly, we have the court system and attitude on our side.

The most positive sign is that the word *hacker*, if taken to mean one who illicitly invades computers, is no longer a term of endearment. It is a term of terror and disdain. Let's keep it that way.

Barney is editor in chief of Amiga World.

Farallon cuts multimedia costs

BY JEAN S. BOZMAN
CW STAFF

EMERYVILLE, Calif. — First there was cut and paste. Now there is clip and edit.

That progression of moves on the Apple Computer, Inc. Macintosh comes by way of Farallon Computing, Inc., which recently introduced a package called Mediatracks, designed for the creation of computer-based training materials.

Mediatracks, due to ship in April, works by replaying programmers' on-screen moves and voice comments alongside whatever video material is attached to the Mediatracks "time line" of on-screen events. "Everything is synchronized and timed the way it occurred in real, human time," product manager Barbara Tien said. The older Screenrecorder 1.0 product did not have the ability to append video and voice inputs.

Making presentations that play in real time, however, requires the use of built-in compression algorithms that squeeze multimegabyte graphics files into compact memory blocks, Tien said. A 4-to-1 sound compression, for example, would store two to three minutes of screen activity and narration into an 800K-byte floppy disk, according to Farallon.

Mediatracks consists of several components: a $295 module of Screenrecorder 2.0 software, a $495 Multimedia Pack module that incorporates sound using Apple's Hypercard technology and a $50 upgrade package for users of Farallon's Screenrecorder 1.0 software. A Multimedia Pack for Screenrecorder 1.0 users is priced at $249. The minimum hardware configuration for Mediatracks is a Macintosh Plus with one megabyte of memory.

"This product is targeted at the business-content expert who had trouble justifying a $15,000 purchase of a Mac IICX with an attached [compact disc/read-only memory] player," said Farallon Marketing Vice-President Tom Reilly. "The comparable setup on a Mac Plus would cost $1,500."

NEW PRODUCTS

Macintosh products

Shirtpocket Software is offering file-server software for Apple Computer, Inc. Macintosh personal computers that supports transparent file access and sharing while running in background mode. This feature reportedly eliminates the need to dedicate a Mac for each file server.

The software provides two levels of file access control. The use of Apple-share-compatible protocols reportedly means that installation of the software is required only on computers used to publish data. Network clients use Appleshare workstation software from their system disk distribution package.

The product offers concurrent support for up to 10 users and a printer at $149 per server.
Shirtpocket Software
P.O. Box 40666
Mesa, Ariz. 85274
602-966-7667

Data storage

Microway, Inc. has reduced prices on its RAM-pak 32-bit memory expansion modules for the Compaq Computer Corp. Deskpro 386/20 and 386/25.

A 1M-byte version of the product contains four 256K byte chips. The 4M-byte module's configuration is made up of a 1M-bit chips and one surface-mount part. The reduced prices for the modules are $240 for the 1M-byte version and $700 for the 4M-byte device.
Microway
P.O. Box 79
Kingston, Mass. 02364
508-746-7341

Goldstar Technology, Inc. has announced a multiport video random-access memory device for use in personal computer graphics, engineering workstations and other applications for serial access to data.

The GMS3C261 can integrate two read/write memories, one 256K-byte by 4 serial-access memory and one 64K-byte by 4K-byte RAM, the company said.

The product is being offered in a plastic, zigzag in-line package for $5 in 100-piece quantities.
Goldstar Technology
3003 N. First St.
San Jose, Calif. 95134
408-432-1331

Peripherals

A wide-carriage, nine-wire dot-matrix printer has been introduced by Star Micronics, Inc.

The NX-1500 Multi-Font was designed to operate with IBM Personal Computers and compatibles and prints at 180 char./sec. in draft mode and 45 char./sec. in near-letter-quality mode at 12 pitch.

The unit is priced at $529.
Star Micronics
Suite 3510
200 Park Ave.
New York, N.Y. 10166
212-986-6770

Lasersmith, Inc. announced a price reduction for its PS-415 415 dot/in. resolution printer.

Current pricing reflects a drop of $1,500 from the former price. The unit offers 35 scalable fonts and Adobe Systems, Inc. Postscript compatibility.

The printer now sells for $2,495.
Lasersmith
430 Martin Ave.
Santa Clara, Calif. 95050
408-727-7700

A business-class serial matrix printer has been introduced by Genicom Corp.

Designated the Model 3410XQD, the printer was designed to provide Digital Equipment Corp. LA210 compatibility and has the capability of printing 480 char./sec. at 12 char./in. Some additional features include zero-in. tear-offs, as well as RS-232 and Centronics parallel interfaces.

The printer carries a list price of $2,275.
Genicom
Genicom Drive
Waynesboro, Va. 22980
800-443-4266

Compared to HP's NewWave Office, IBM's

OfficeVision has a few limitations.

IBM promises to simplify business computing dramatically with its new OfficeVision systems. But if you follow that vision, you may not be as prepared for the future as you think.

Hewlett-Packard has a better way.

The HP NewWave Office system. It gives you all the functionality IBM OfficeVision claims to give you. And much more.

Through our unique object-based technology, HP NewWave Office lets all of your information resources work together. And gives users a consistent interface across mainframes, minis, workstations, and PCs. It also integrates information from all your applications, regardless of the vendor. Something IBM OfficeVision can't deliver.

HP NewWave Office system integrates all your existing MS-DOS* applications. IBM OfficeVision doesn't. So, which system better protects your investment in DOS PCs and software?

HP NewWave Office gives you industry-standard networking and lets you coexist with IBM. It runs on HP3000 systems, HP's UNIX* system based computers, and the industry-standard OS/2 operating system. IBM OfficeVision runs only on IBM's proprietary OS/2 Extended Edition, OS/400, MVS, or VM. So, which system gives you more flexibility for the future?

To date, sixty companies are writing software for HP NewWave Office. According to IBM's advertising, eight are writing applications for IBM OfficeVision. So, which system gives your people a greater selection of software?

Beyond all this, HP NewWave Office system gives your users the extraordinary new "agents" capability. Like a computerized staff, "agents" can learn to handle a wide range of sophisticated computing tasks, such as compiling and distributing sales forecasts. IBM OfficeVision has nothing comparable. So, which system is actually more visionary? To find out, call **1-800-752-0900, Ext. 283G.**

There is a better way.

HEWLETT PACKARD

NETWORKING

DATA STREAM

Christopher C. Teeter

Safeguarding long distance

The software glitch that knocked out a portion of AT&T's long-distance network Jan. 15 confirmed that even the largest of long-distance carriers are sometimes vulnerable to breakdowns. Although it's unlikely that this type of incident will happen again anytime soon, telecommunications managers were reminded of the importance of including long-distance network safeguards when designing disaster recovery plans.

While complete long-distance network redundancy is not economically feasible, partial redundancy is a strategy worth implementing for those companies that are "lifeblood" users of telecommunications. In businesses where survival depends on telecommunications functions, savvy managers have begun to realize the need for dividing their telecommunications service between two separate long-distance carriers.

These managers view the decision to use an alternate long-distance network as a strategic one, based on how telecommunications is used in their business. When making this assessment, Andersen Consulting divides enterprises into three groups of telecommunications users.

The first group is what we *Continued on page 50*

Businesses benefit from interconnectivity boom

BY ELISABETH HORWITT
CW STAFF

Several small, young companies are growing bigger and more profitable by helping corporations establish communications across a multivendor spaghetti of local and long-distance networking systems.

The type of offering that seems most appealing to harried network managers is a server or hub with a low entry price that can be configured with different boards and software to interconnect a wide variety of local and wide-area networks.

Dutability Software Systems, Inc., for example, brought in $5 million in revenue during fiscal 1988, selling Digital Equipment Corp.-compatible communications servers, according to Ronald Howard, the company's president.

Then in 1989, the New York-based company introduced a communications platform that supports a wide variety of LAN and WAN network protocols and revenue jumped to $25 million, with 1990 expected to bring in $40 million, Howard said.

With a base price of $5,399 including the box, a network card and a board serving up to 32 terminals, Dutability's VCP-1000 has "the lowest entry level in the market," Howard claimed. It can be configured with boards to support modems, synchronous lines, X.25 packet-switched connections and Ethernet LANs.

Systems can communicate via the box using either DEC's Local Area Transport protocol or *Continued on page 49*

Great expectations

Users who are looking to interconnect a mixed bag of local- and wide-area networking environments should look to an emerging breed of communications server that can act as one or more of the following:

● Bridges and routers. Interconnect two similar environments — two Ethernet LANs, for example — over distance or locally.

● Gateways. Connect LANs to a host or another type of communications environment such as X.25.

● Hubs. Interconnect multiple LANs that are using different types of cabling media.

● Terminal servers. Connect multiple user workstations to a LAN or other type of communications link such as asynchronous modem-based.

ELISABETH HORWITT

Modems in search for new frontiers

BY JIM NASH
CW STAFF

Modems are expected to maintain their presence in the information transmission market at least through this decade, yet engineers for modem makers are exploring different ways to package high-speed modems to augment that position more.

A recent Frost & Sullivan, Inc. study predicts unit sales of modems will hit four million by 1993, about one million more than 1989. Much of that increase depends on rising transmission speeds. But manufacturers want to augment sales by packaging modems differently. Starting several years ago with laptops, engineers have begun moving modems off the desk and into the personal computer, with some makers ready to place two-chip modems right on the motherboard. At least one manufacturer is thinking about a marriage between built-in modems and facsimile functions.

Intel Corp. is exploring combined modem and facsimile functions for laptop motherboards, according to Jag Bolaria, Intel's product manager for modems. Bolaria foresees facsimile functions in such a setup keeping pace with modem speeds of 9.6K bit/sec., 14.4K bit/sec. and even 19.2K bit/sec.

Bolaria said Intel plans to announce a two-chip modem later this month that requires less space on a board and automatically shuts down when not in use. The chips will be marketed for plug-in boards but could be installed on motherboards. Intel already has a space-saving two-chip modem that requires low power, Bolaria said.

Most major modem makers are exploring high-speed, external modems (up to 19.2K bit/sec.) combined with facsimile functions. A spokesperson at Silicon Systems, Inc. said SSI will join with Hayes Microcomputer Products, Inc. this summer in announcing a product along these lines.

At least for the moment, modem and chip makers show more interest in built-in modems than do most users. Today, the technology is used as a PC marketing tool, Bolaria said.

Paul Zagaeski, The Yankee Group's senior analyst for PCs and workstations, agreed: "The PC market is a commodity market. PC makers need to add a bell or a whistle to their products." He said niche environments, particularly those that do not often trade old systems for new, initially would be most accepting of the technology.

Upgrading modems on PCs would mean swapping motherboards, Zagaeski said. Cost is the primary advantage of putting modems on motherboards, industry analysts agreed. A modem chip comparable in speed to separate units can be installed in a PC for $50 or less.

Token-ring vendor cuts itself a slice of Sabre

BY JOANIE M. WEXLER
CW STAFF

The most recent vendor to grab a slice of American Airlines' Sabre computer reservation system is Proteon, Inc.

In a contract signed last month with AT&T — the primary vendor supplying workstations to Sabre and American's internal Interact office automation system — Proteon became the official provider of 4M bit/sec. adapter cards that will connect AT&T computers to the token-ring local-area networks American has been installing in travel agencies, airports and its Interact systems around the world.

Proteon is supplying its Pronet-4 family of cards that support both unshielded twisted-pair and twisted-pair wiring, intelligent wire centers and integrated network management.

Exclusively Proteon

The token-ring vendor has been providing the cards to AT&T on an order-by-order basis since AT&T was selected last June by American to join IBM in providing Intel Corp. 80386-based workstations for Sabre's Novell, Inc. LANs. AT&T has decided that Proteon will be its exclusive supplier for the adapter cards.

AT&T is providing American with diskless and small server configurations of its 6386 computer and a large server version of its 25-MHz 6386 system, according to John Dungler, who manages a Dallas branch of AT&T that is dedicated exclusively to the American contract.

American — a pioneer in interweaving customer service and networking in the business of selling airline seats — has been migrating its renowned Sabre computer reservation system since 1967 from an Icot, Inc. terminal-to-host platform to workstations running on token-ring LANs.

American said it decided to move to the LAN configuration to give travel agents more flexibility with personal computer-oriented applications — such as word processing and electronic mail — and to allow them to find information more quickly for travelers, according to spokeswoman Karen Cook.

For example, she said, a program called Sabre Exports allows agents to capture information on their screens and merge it into a letter.

In addition, according to Cook, Intuitive Sabre software is a friendly front end for users who are familiar with the travel business but who have not worked specifically with the Sabre system.

Resort to Subrevision

Cook also said that this spring the airline will roll out Subrevision, a program that will allow agents to see pictures of resort properties and gather detailed information about them without exiting the system — or having to hunt down a brochure and call back would-be travelers with the information.

The Sabre system has expanded over the years to link into hotel and car rental reservation systems and now includes 73,000 terminals worldwide, of which 35,000 are PCs, according to American.

In June 1989, American announced that it would buy at least 50,000 PCs over the next two years for use in Sabre and Interact.

That contract is now split among AT&T and IBM, which are supplying computers to both Sabre and Interact, and Tandy Computer Corp., which is providing computers for Interact only.

NASA research center embraces FDDI

Langley's communications chief was rewarded with a painless transition after planning ahead

ON SITE

BY JOANIE M. WEXLER
CW STAFF

Top-down planning has enabled the Langley Research Center, a NASA site, to stay a heartbeat ahead of its communications needs.

The center's recent, painless transition to Fiber Distributed Data Interface (FDDI) reflects the organization's foresight and flexibility to incorporate new technologies *before* users become frustrated by network traffic jams.

Langley, which is set up in a campus configuration over a 2½-square-mile area in Hampton, Va., is using FDDI as a backbone and will consider direct attachments to the 100M bit/sec. fiber ring later this year, according to Edwin Riddle, head of Langley's Communications and Network Systems Branch.

Riddle's operation supports a conglomeration of multivendor computers communicating over about 60 Ethernet local-area networks linked by fiber backbones. Langley is currently running a self-enabled FDDI ring linked to two of the Ethernets by Fibronics International, Inc. FX8210 learning bridges. Proteon, Inc. Proton-10 and Proteon 4200 fiber backbones and Proteon 4200 routers link the remaining Ethernets. Riddle said his job is to phase out the Proteon networks in favor of FDDI.

"Why use 80M bit/sec., nonstandard products from a single vendor when FDDI runs at 100M bit/sec. and is standardized?" Riddle reasoned.

In the data center, a Cray Research, Inc. Cray-2 supercomputer and three Convex Computer Corp. minisupercomputers are linked via a 50M bit/sec. Hyperchannel network from Network Systems, Inc. Riddle said he is anxious to replace the Hyperchannel with FDDI "as soon as there are interface cards on the market that attach the Cray-

2 and Convex supermini directly to FDDI."

Throughout Langley's campus, about 700 IBM Personal Computers and clones, more than 200 Apple Computer, Inc. Macintoshes, 200 Sun Microsystems, Inc. workstations and 300 Digital Equipment Corp. Microvaxes are used by aeronautics engineers and scientists, as well as by administrative personnel.

Riddle said his philosophy in implementing new technologies is "not to go full blast with anything." This approach, he said, allows him to adapt his operation as new technologies emerge without having to repeatedly throw out large investments.

Riddle started networking the Langley center in 1984 by installing Ethernet LANs in just

three of 20 buildings that then required a computer network. At that time, he installed a fiber cable plant in anticipation of future needs. Today, 52 of the center's 100 buildings are internetworked using fiber.

Six months ago, Riddle purchased four of Fibronics' FX8210s and measured their performance for two months before installing two of them between the FDDI ring and the Ethernets in two high-traffic buildings.

"We've been having very good success with the bridges," Riddle said. "Fibronics claims they filter 10,000 packets per second and forward 5,000, and our testing does not dispute that. It looks very good for updating the whole network next year to FDDI."

Riddle said that the speed

constraints of the computers — not of the backbones and bridges — are responsible for his network's bottlenecks. "But our statistics show that the Proteon-10 backbones will be saturated by the end of the year, so we're implementing FDDI none too early," he said.

Riddle said he has determined that throughput over the Proteon-10 is halved during peak traffic periods; he expects a fourfold increase in throughput compared with the 10M bit/sec. network using FDDI.

On Riddle's wish list is a turnkey network management package. "With the Fibronics network management package, we can't determine traffic levels on each Ethernet," he said.

Riddle said that he anticipates that the cost for direct attachments to the FDDI ring will drop as product volumes increase — in time for him to send his bandwidth-hungry applications directly across the ring. But will 100M bit/sec. be enough?

"We'll continue to put in technology to meet our needs, knowing that there will be changes," he said. "Our-gigabit speeds will be the next step, but for now, FDDI is the best thing going."

Langley's Riddle is phasing in FDDI

BIT BLAST

Para plans Novell monitor board

Backup power supply manufacturer Para Systems, Inc. has entered into a technology transfer agreement with Novell, Inc. under which Para Systems will produce a device similar to Novell's UPS Monitoring Board, which allows a file server on a Novell Netware local-area network to monitor and control a power protection device. Para Systems will sell its board, which also runs on Netware LANs, under its own name.

Universal Data Systems has enhanced its TA100 integrated Services Digital Network terminal adapter to be compatible with AT&T's 5ESS central office switch. The adapter is already compatible with Northern Telecom's DMS-100 switch.

The Corporation for Open Systems International (COS) has announced an agreement that calls for the UK-based National Computing Centre Ltd. to continue work on COS' existing File Transfer Access and Management, Message Handling System, Transport and Internet conformance test systems.

IBM has announced several new business partners that offer tools for facilitating the development of Netview/PC ap-

plications. They are the following: Kapteonics, Inc. in Haworth, N.J., Diedrich's and Associates in South Pasadena, Calif., and Applied System Technologies, Inc. in Fort Lauderdale, Fla.

US Connect, the nationwide partnership of network systems integrators that services and supports multilocation accounts, has signed up its seventh and eighth members. The new members are Real World Systems, Inc. and Riverbend Group, Inc.

Data General Corp. will license and distribute the Netview, Inc. Remote Procedure Call (RPC) Tool — which allows developers to build client/server applications for a variety of platforms — as part of its Distributed Applications Architecture Openline product set. Netwise has also announced a Netware 386 version and Netware 3.0 version of RPC Tool.

A year-long study by the Electronic Data Interchange Association (EDIA) and research firm Gartner Group, Inc. shows that small and medium-size companies across many industries are using EDI, broadening the characterization of EDI as only being used in large companies or in certain industries.

DEC OS/2 debut signals good news — in a while

BY JOANIE M. WEXLER
CW STAFF

BOSTON — Digital Equipment Corp.'s recent announcement that it has made room on its distributed networks for Microsoft Corp.'s OS/2 — both as client and server — may be good news to some DEC users more for the long term than for today.

Both Ray Lollar, vice-president of information services at Gold-Star, Inc. in Atlanta and Gary Bishop, Mary Kay Cosmetics, Inc. vice-president of MIS, said that because of their large installed bases of MS-DOS machines, they're not moving to OS/2 right away. "That the announcements give us options for growth in the long run," Bishop said.

In light of a statement made by a DEC vice-president last fall at the company's rollout of its Network Application Support (NAS) distributed network strategy that "it's not our plan to go in the direction of OS/2 as a server; that is not fitting for an enterprise-wide system," the OS/2 server support would seem a dramatic strategic shift for DEC.

But at least one analyst said he was not surprised by the rollouts because DEC has been licensing Microsoft's OS/2 LAN Manager network operating system for the past year, which he interpreted to mean that DEC

had always planned to introduce OS/2 servers.

"In fact, I'm surprised it took DEC this long to come out with an OS/2 strategy; other licensees all announced products over a year ago," said Dave Passmore, a partner in the Network Strategies consulting practice of Ernst & Young in Fairfax, Va.

John Rose, DEC's group manager for personal computing systems, maintains that "OS/2 is a logical part of our overall product offering. We have customers who may want to start with small, stand-alone LANs where the OS/2 server is the ideal server for them." DEC plans to make some portion of its NAS services available on OS/2, he added.

DEC announced an OS/2 version of its Personal Computing Systems Architecture (PCSA), which originally set up VMS systems as servers for MS-DOS clients. Now DOS or OS/2 clients can use the software to access either OS/2 or VMS servers, DEC said. PCSA for OS/2, which is based on Microsoft's LAN Manager network operating system, brings OS/2 systems "into the NAS environment," DEC said.

PCSA, as well as two OS/2 servers based on Intel Corp. 80386 microprocessors, is slated to ship in May. A single-user PCSA client license is $195; a server license is $295. The servers cost $13,360 and $10,215.

Interconnectivity

CONTINUED FROM PAGE 47

Transmission Control Protocol/Internet Protocol (TCP/IP), Howard said. Support for Fiber Distributed Data Interconnect and Integrated Services Digital Network (ISDN) protocols are planned for future releases, he added.

Mead Data Central, Inc., a Dayton, Ohio, firm that supplies data retrieval services such as Lexis and Nexis, is evaluating whether Datability's box provides "the faster, better, cheaper way to extend our network to the customer's site," particularly if that site uses DEC systems, Mead engineer Michael Worley said.

The VCP-1000 can act as a server that connects terminals to Decnet using the LAT protocol and as a multiplexer that hooks up terminal users to Mead's services on an X.25 connection, he added.

However, Mead does not see much use for the VCP-1000 at non-DEC customer sites, Worley said. For example, Novell, Inc. LAN users can access Mead services via a Novell server without needing to install a separate Datability box, he added.

Cabletron Systems, Inc., which started out as a simple Ethernet cabling company, began seeing revenue shoot up more than 150% per year in 1986, when it became the first "smart hub" vendor, Cabletron Chairman Craig Benson said.

Benson defined smart hubs as "configurable boxes" that can interconnect multiple LANs — in Synoptics Communications, Inc.'s case, Ethernets — running

on a variety of cabling media. Cabletron also sells boards that link a variety of machines to the LAN and bridges to connect LANs over distance.

Cabletron and rivals Synoptics and Ungermann-Bass, Inc. are targeting a hot market, according to a recent study by Forrester Research, Inc. The Cambridge, Mass., research firm projects that the smart hub market will grow from $146 million in 1989 to $756 million in 1993.

Such hubs are "smart" because they can perform such network management activities as gathering traffic and error activity from each network segment, Benson said. Indeed, network management is a key selling point for the communications platform market. Cabletron's Lanview and Lanvista products support Simple

Network Management Protocol (SNMP) now, and will support the Open Systems Interconnect (OSI) Common Management Information Protocol, as well as IBM's Netview and other leading management platforms, Benson said.

Datability recently introduced support of SNMP-based network management systems for its product and plans to support OSI products in future, Howard said.

One of the newer — and more ambitious — aspirants in the interconnectivity market is Peer Networks, Inc.

The Santa Clara, Calif., start-up hopes by second quarter to introduce a "customized communications hardware platform" that will consist of multiple boards, each of which can contain multiple Motorola, Inc. 86302 chips, said the company's

president, James Mullen. Since each chip can support a different networking environment, such as Ethernet or X.25, the platform minimizes the need to slow down transmissions by routing them between separate boards, he added.

Peer Networks is trying to hit all the interconnectivity hot buttons with its new product. Scheduled to ship in the third quarter, it will start at a cost competitive with that of PC-based servers, and be upgradable to 256 boards, Mullen said. It will support Ethernet and token-ring on the LAN side and fractional and full T1, X.25 and ISDN on the WAN side. It will also run standard communications software that supports such protocols as TCP/IP and IBM's Systems Network Architecture, Mullen added.

Bytex, Tektronix unveil test facility

BY SALLY CUSACK
CW STAFF

Bytex Corp., in Southboro, Mass., and Tektronix, Inc., in Mountain View, Calif., recently unwrapped a remote data center management product aimed at large central data sites with matrix switches and distributed data centers.

The Bytex Unity Test Facility reportedly combines Tektronix's modified protocol analyzers, Transmission Impairment Measurement System testers and T1 testers with the network control functions of Bytex's electronic matrix switches.

Users can expand their remote center management capabilities by isolating, identifying and diagnosing network problems at remote locations without leaving the central control facility, Bytex said. The matrix-switching feature permits a spare component to be inserted immediately to replace a failed component.

The Test Facility has dual-port protocol analyzer capabilities for simultaneous monitoring of two independent interfaces, and its central control feature offers menus and integrated Help functions, the company said. An elementary programming facility is provided for emulation of various data communications devices. The system can be used to check the network at physical, data-link or packet levels. The product also offers direct connection to IBM's Netview.

Scheduled for delivery after March 31, a high-end system will be priced at approximately $10,000.

Vendors redirect net management

BY ELISABETH HORWITT
CW STAFF

Two companies have announced plans to revamp their management platforms into more viable contestants in the multivendor management market.

Boole & Babbage, Inc. announced Maxiview, a platform that will mesh Boole & Babbage's IBM host performance management products with the Net/Command network management platform of its Avant-Garde, Inc. subsidiary. The combination will "allow virtually immediate delivery of end-to-end surveillance and control of

network and application in a multivendor environment," Avant-Garde President William Blumstrom said.

Racal Data Communications Group announced that it will provide integrated management for all of its product lines, and eventually for other vendors' products as well, through the Open Network Management System (ONMS), which it recently acquired from Digital Communications Associates, Inc. (DCA). Racal announced the CMS 6000, a graphics-based network management workstation that will initially manage Racal Milgo modems and multiplexers, and the

9000 T1 multiplexer line acquired from DCA.

Future plans involve merging Racal's Quanta fiber-based premise distribution systems, Interlan local-area networks, Vadic modems and Skynetwork satellite systems under the ONMS management platform. Racal said. Tools for integrating other vendors' systems onto the platform will be made available within a year. Racal also plans to provide links to IBM's Netview, Digital Equipment Corp.'s Enterprise Management Architecture and AT&T's Accumaster Integrator through the former DCA system.

Teeter

call the "commodity" users. Businesses in this group include consumer products firms and oil and gas companies. For these users, telecommunications is a productivity vehicle for day-to-day business. Although their revenue stream might stop if their long-distance network went down, their revenue would be recovered later.

The second group is the "communications intensive" businesses, such as retail banks and insurance companies. Telecommunications expenses are 1% to 2% of the company's total operating budget. For this group, revenue lost during an outage might not be made up.

Lifeblood telecommunications users, such as travel or hospitality reservation networks and capital markets firms, are

the third group. These users spend 2% to 7% — or more than $10 million for a $500 million business — of their company's total operating budget on telecommunications expenses. The applications vital to their busi-

policy" that, for example, allows them to divide 70% of their monthly voice and data traffic across one long-distance carrier and 30% across a secondary carrier. If the primary carrier shuts down, telecommunications managers can switch their traffic to the secondary carrier. At that time they can route calls to the critical users, while decreasing service to other noncommunications-dependent areas. Unfortunately, toll-free 800 numbers today cannot be served by two different long-distance carriers. However, architectural standards are being developed on a universal numbering plan that will allow for this capability in the future.

Another strategy telecommunications managers are beginning to explore is performance-level agreements from their major long-distance carriers. These agreements would be part of a long-term contract in which the carrier who builds and provides a client's custom-designed network will not only reimburse the company for the rate costs when the network is down but also for the business lost during that downtime.

From a user's corporate standpoint, the AT&T shutdown was not as critical as the fire at the Illinois Bell switch in Hinsdale, Ill. or New York Telephone's Brooklyn central office. When one of the nation's premier long-distance carriers goes down, entire industries may be without service. Competing businesses suffer together. But, in Hinsdale and Brooklyn, when a company's local exchange carrier goes down, that company may be one of only a few in its industry not operating. The combination of these incidents has made telecommunications' role in the systems security and business recovery plan more visible and crucial. Having safeguards in place is a necessity for the communications-dependent organization.

THE AT&T shutdown was not as critical as the fire at the Illinois Bell switching station in Hinsdale, Ill.

ness operations are based on a strong telecommunications infrastructure. If their long-distance network shuts down, it means both current and future revenue lost.

These communications-dependent companies will spend the money for an "insurance

NEW PRODUCTS

Modems

U.S. Robotics, Inc. has announced two enhancements to its Total Control family of communications system products.

The Modem-Master 32 reportedly can accommodate 16 high-speed modems or 32 medium-speed modems. The rack includes a chassis, backplane, two redundant power supplies, a rack-modem interface unit, a rack-controller unit and rack controllers. The device enables central-site users to expand their systems' capabilities at their own pace, according to the vendor.

Modem Manager 32 allows users to program a system for instantaneous execution of various tasks, such as automatically rerouting a modem or phone line if either fails. Other features include such log-keeping capabilities as generic events, alarms, operator actions, dial-in security, modem connection logs and report generation.

Basic pricing for the Modem Master 32 is $1,095; an upgrade to the Modem Master PC costs $19.95. A software site license sells for $995. The basic price for Modem Manager PC is $2,295.

U.S. Robotics
8100 N. McCormick Blvd.
Skokie, Ill. 60076
708-982-5010

Shiva Corp. has unveiled the Netmodem V.32, a 9.6K bit/sec. V.32- and Hayes-compatible modem that connects directly to Apple Computer, Inc. AppleTalk networks.

The stand-alone device includes a dial-in network access feature that permits a remote Appletalk network user to connect with another Appletalk network via a single Macintosh or personal computer and a modem, the vendor said. Once connected via the network's Netmodem, remote users can access file servers, printing resources and electronic mail.

The product's teleledging feature reportedly links remote networks over regular phone lines, thereby enabling users on both networks to share files, E-mail and printers.

The modem is scheduled to be available nationally in April for a list price of $1,999.

Shiva
155 Second St.
Cambridge, Mass. 02141
617-864-8500

Network management

Telebit Corp. has introduced a network management system specifically designed for high-performance dial-up networks.

TMS 10 supports both connection and administration security, the vendor said. An eight-character password protects unauthorized access at the network manager's station. Password identification and call-back functions provide connection security.

The software monitors the status and usage of all network modems in real time and highlights activities and events in color. The network administrator can establish event priorities with a user-defined alarm level.

The product generates reports based on the detailed record it maintains on such networking events as modem usage, line congestion and number of calls. Administrator-defined alerts can also be generated, thereby providing network managers with critical data to help detect, prioritize and correct problems before they reach the point where they affect service.

The price for the TMS 10 is $1,995. The product is slated to ship this month.

Telebit
1315 Chesapeake Terr.
Sunnyvale, Calif. 94089
408-734-4333

Gateway Communications, Inc. has introduced G/Ethernet Hub, an IEEE 802.3-compatible unit that supports multivendor unshielded twisted-pair Ethernet local-area network environments.

The product's flat modules and controller chip feature built-in network management intelligence that provides line checking, automatic disabling of faulty lines and automatic reinsertion of restored links, the vendor said.

An optional expansion module fits into the hub's chassis, enabling network managers to use two modules that each support an auxiliary unit interface and 11 RJ-45 connections.

The product comes equipped with one hub module, a power supply and hardware for both desktop and wall-mount operations.

The G/Ethernet Hub is priced at $1,995.

The optional expansion module for the hub is available for $1,595.

Gateway Communications
2941 Alton Ave.
Irvine, Calif. 92714
714-553-1555

Shiva's Netmodem V.32
has dial-in network access

UNIX® System V, In The Easy Open Package.

The AT&T OPEN LOOK™ Graphical User Interface—the standard look and feel for UNIX® System V Release 4—is now shipped on every source tape. Human factors research drove its design, so wizards and novices alike learn it more easily than competing products.

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AT&T
The right choice.

Front ends, multiplexers

Four modems or terminals can share a master modem, multiplexer or computer port in a polling environment using a master-slave digital device from Rad Data Communications, Inc.

The RSD-M operates with asynchronous or synchronous equipment at data rates up to 19.2K bit/sec. The main channel broadcasts information to all sub-channels in parallel. A selectable data terminal equipment/data circuit-terminating equipment (DTE/DCE) switch allows connection to another DCE, such as a multiplexer port, without requiring a cross-cable. The product supports three

clock modes and operates without an AC power supply. The price is $550.

Rad Data Communications
151 West Passaic St.
Rochelle Park, N.J. 07662
201-587-8822

An integrated data, voice and video multiplexer has been introduced by Avanti Communications Corp.

Designated the ONC 100 VS, the unit can reportedly be monitored, controlled and configured from a central location and can be used for video teleconferencing, Private Branch Exchange tie trunks, facsimiles, and host-to-terminal applications. Pricing starts at about $4,000.

Avanti
115 Norwood Park S.

Norwood, Mass. 02062
617-551-3333

Links

Gandalf Data, Inc. has announced a shared facsimile service that allows users of personal computers to send, receive, read and review fax messages from their screens from any point on Gandalf's network.

The service is offered as part of a strategic marketing agreement with Castelle, a Santa Clara, Calif.-based manufacturer of dedicated network server products for work-group computing. It is being offered with the Starport desktop computing feature of Gandalf's Starmaster network processor.

Starmaster enables PC and terminal users to share access to high-end fax system features such as automatic redialing, delayed sending and broadcasting, direct sending from within software applications, high-quality plain-paper printing, automatic accounting and logging.

The fax server capability is available for immediate delivery to Gandalf Starmaster and Starport system customers. Prices are $3,995 or $4,395, depending on configuration and amount of random-access memory.

Gandalf Data
1020 S. Noel Ave.
Wheeling, Ill. 60090
708-459-9348

Hitachi America, Inc. has introduced a facsimile machine that offers 256K bytes of memory and an automatic address printer.

The Hifax 38M is capable of storing as many as 15 standard business pages in memory and also permits a single out-of-paper reception, store-and-forward transmission and automatic broadcasting of key documents to up to 20 locations, the vendor said.

The fax machine will carry a retail list price of $2,295.

Hitachi America
2990 Gateway Drive
Norcross, Ga. 30071
404-446-8820

Electronic data interchange

Osiware, Inc. and Hi-Tech Systems Ltd. have agreed to port the former company's Messenger 400 (M400) X.400-compliant electronic messaging software to the IBM MVS/XA and MVS/ESA operating systems.

M400/MVS reportedly will offer standard features of electronic data interchange, including conversation-oriented communications (LU-to-LU) and application program interfaces. The messaging product incorporates the User Agent, Message Transfer Agent and Reliable Transfer Server as specified in the X.400 standard.

An optional M400 to OS/2 Communicator allows for the exchange of information with non-IBM systems. The Communicator has the same X.400 specifications as the M400/MVS. It also supports Systems Network Architecture LU6.2, X.25 and TTXP, an asynchronous error-correcting protocol from Osiware.

Object code prices for the M400/MVS range from $21,120 to $92,400.

Osiware
4370 Dominion St.
Suite 200
Burnaby, B.C.
Canada V5G 4L7
604-436-2922

Computerization: Out of control?

As expenditures soar, CEOs wonder if IS and business will ever find common ground

Despite all the current talk about the strategic use of information systems, a large number of top business executives feel that IS spending is out of control — and that their IS executives still fail to see technology in business terms. Such a view is articulated by Robert Bittlestone, president and chief executive officer of Metapraxis, a UK-based management consultancy with offices in London and New York. The following is reprinted from Chief Executive magazine.

It's running at several hundred billion annually, with a double-digit growth rate. It dwarfs the federal budget deficit, the Defense Department allocation and total annual education spending. In terms of national expenditure, it's one of the 50 largest countries in the world. It permeates every facet of corporate life and affects every decision that we make. It is arguably the single most crucial weapon in the race to win the international business olympics.

It is, of course, our annual expenditure on computerization — and it is dangerously out of control.

Over the last few years, I've listened to over a hundred CEOs of major international corporations and government agencies who expressed their views on information technology (IT). Less than 15% believe that they are getting their money's worth from their IT investments. Less than 12% consider their IT projects to be under proper control, and less than 10% regard it as acceptable for their IT projects to be so time-consuming and expensive. Remarkably, less than 5% can recall any IT project ever delivering the promised results on time and within budget or believe that these problems will no longer recur.

Inflationary IT expenditure, coupled with a dubious payback, is now a major concern of CEOs. Other problems may be tough, but a good CEO can solve them. Merger and acquisition policy, market share, price/performance, labor relations, product research, competitive response, just-in-time, quality circles — none of these are straightforward, but they all fall into the bag of business challenges that a CEO is equipped to tackle.

IT problems are different. They are presented in a language that seems to bear no relation to business goals. When we're asked for our verdict on a $25 million development program for product R&D, we don't expect the text of the proposal to dwell on the detailed physics of superconductivity. When we're hit with an IT project proposal of similar size, the wording makes our eyes glaze before the font of the first page. The terminology is alien, while the technology is the prime

focus. The business has been relegated to the sidelines and the cost-justification doesn't jell.

It's no wonder that a CEO I know in the oil business says, "When I hear the word computer, I reach for my capital expenditure veto."

Some CEOs are attempting to solve the problem by pouring more dollars into IT. One technique is to appoint a chief information officer at the executive committee or board level. The short-term advantage is that you can off-load your new CIO with all the IT paperwork that's been collecting dust in your in-box.

The risk is that your CIO then starts to build an empire and subsequently finds it hard to understand that your sanity and survival depend on pushing profit responsibility down the chart. The one thing a CEO cannot live with is a high-level, major cost center. Even the CFO usually has dotted-line, not solid-line, reporting relationships with divisional financial staff. A CIO needs to be both saint and master of diplomacy if he is to avoid creating major tensions with divisional chief executives.

Another approach is to engage con-

sultants, not just to advise on a solution but also to operate some or all of the data processing activity on a permanent basis. The immediate effect is gratifying: tough professionalism on project specifications, internal "clients" signing off on measured benefits; impressive (albeit inscrutable) methodologies; an end to programmers and the arrival of programs that write other programs.

However, the fees tend to escalate rather rapidly, sometimes exponentially, especially when the consultants regularly present you with the compelling logic of keeping up with the standards of the rest of the industry. The consultants seem to know much more about this than your previous in-house IT people did, and it's uncomfortable to ignore their advice, even though your CFO is starting to appear a bit ragged as the fees arrive.

Conversations about IT expenditure seem to revolve around the need for more and more mainframes. The old ones could be enhanced, but not nearly enough for the daunting complexity and uniquely insatiable appetite of your business. Also extolled

Technology costs take their toll

Manufacturers to focus on infrastructural issues in 1990s, survey says

BY ELLIS BOOKER
CW STAFF

Believing they are not getting their money's worth from information technologies, senior manufacturing executives are now emphasizing non-IS items, such as improving the skills of their workers, as a means of positioning themselves for competition in the 1990s, according to a recent survey.

Results from the third annual Survey of North American Manufacturing Technology were released recently by Deloitte & Touche Manufacturing Consulting Services. The survey reflects responses from 759 executives at manufacturing companies in North America.

Taken together, the three annual surveys show a diminishing expectation for the benefits of technology (see chart page 106). The first survey, in 1987, found that 60% of respondents saw a significant benefit from the application of advanced technology to manufacturing. In the 1988 survey, 50% of the respondents said technology was beneficial, while in the most recent survey, completed late last year, only 30% saw significant benefits from technology.

The executives cited, in particular, the high cost of deploying advanced manufacturing systems.

A decade ago, a handful of manufacturers spent heavily in developing computer-integrated manufacturing (CIM), which attempts to wed information technologies of several sorts — back office, design and development and factory-floor process control systems — into an integrated whole.

Despite the success of some of these pioneers, however, the majority of manufacturers have not realized the expected gains and are now eyeing such IS expenditures more carefully, said Patrick J. Delaney, a partner in the Manufacturing Consulting Services group in the Chicago office of Deloitte & Touche.

"Companies are realizing they don't have the work force at a skill level to run some of these technologies," he said. "There's a realization that technology investments alone won't bring benefits." He said the annual investment of U.S. manufacturers in IS has held steady over the past decade at between 1.5% and 3.5% of revenue.

Delaney noted that Japanese manufacturers, in general, have historically focused on infrastructural issues such as training, long-term planning and management/labor relations and are only now implementing advanced technologies.

Ranking the contribution of various technologies to the success of their business, the executives cited just-in-time systems and manufacturing resource planning II integrated systems as "above average." In hardware, the clear winner was the personal computer, outpacing the perceived value of programmable controllers for the factory floor and computer-aided design systems by a significant margin.

The survey notes that North American manufacturers have made across-the-board gains in improving the quality of their products and focusing more on customer satisfaction and service.

The most recent survey, the largest Deloitte & Touche has conducted, covered a wide range of manufacturing companies. Most were situated in the Midwest, and the typical respondent was from a manufacturing unit with under $100 million in annual sales.

An additional 15% of the respondents were from units with sales of more than $500 million. Overall, 42% of the executives responding to the survey were part of a Fortune 500-size company.

Fading further

Benefits from manufacturing technology have tapered off between 1988 and 1989

1989
Increased labor productivity
71%
Increased product quality
70%
Increased profits
49%
Reduction of inventory
48%
Reduction of lead time
47%
Reduced factory overhead
42.5%
Sales growth
39%

Percent of respondents indicating benefit
Base of 759
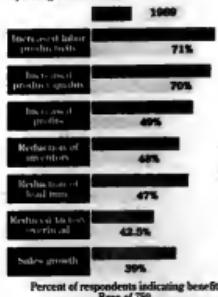
Source: Deloitte & Touche

CW Chart: Marie Haines

C A L E N D A R

"Achieving Business Goals through Technology" will be the theme of the Life Office Management Association (LOMA) Perspectives on the Partnership conference next month.

The conference, slated for April 29 to May 2 in Toronto, will feature discussion on challenges to improve service, create productive distribution channels and control costs. Scheduled speakers include information systems executives and other senior corporate executives from major insurance companies; Michael Hammer, president of Hammer & Co.; and Eric Clemons, associate professor of the Wharton School of Economics at University of Pensylvania.

For more information, contact Ann Purr at LOMA, 5770 Powers Ferry Road, Atlanta, Ga. 30327 or call (404) 984-3733.

MARCH 18-24

Financial and Human Resources Solutions Conference. Washington, D.C., March 21 — Contact: Walker Interactive Systems, San Francisco, Calif. (415) 495-8866.

Executive Users Group for Enterprise Architecture. New York, March 22 — Contact: Adtech, Mamaroneck, N.Y. (914) 381-5650.

Security and the Local Area Network. Toronto, March 22-23 — Contact: Pam Salaway, Computer Security Institute, Northboro, Mass. (508) 393-2220.

Communicating Effectively with Information Systems Clients. Los Angeles, March 22-23 — Contact: Ouellette and Associates, Bedford, N.H. (603) 623-7373.

Wireless Office Systems and Personal Communications Networks. New York, March 22-23 — Contact: Probe Research, Cedar Knolls, N.J. (201) 285-1500.

Seven Eastern Regional Group Annual Conference. Clearwater, Fla., March 25-28 — Contact: Deidrich E. Towne Jr., Niagara Mohawk Power, Syracuse, N.Y. (315) 428-6080.

Software Publishers Association Spring Symposium. San Diego, March 25-28 — Contact: SPA Symposium Registration, Washington, D.C. (202) 452-1600.

Image Scanning and Processing. Miami, March 26-28 — Contact: BIS CAP International, Norwell, Mass. (617) 982-9500.

American National Standards Institute 1990 Public Conference. Washington, D.C., March 27-28 — Contact: American National Standards Institute, New York, N.Y. (212) 354-3300.

DB/Expo '90. San Francisco, March 27-29 — Contact: Norm DeNardi Enterprises, Los Altos, Calif. (415) 941-8440.

Multi-Net Expo '90. Houston, March 27-28 — Contact: Multi-Net, Houston, Texas (713) 827-8030.

Association for Computing Machinery, PC Symposium of Small Systems. Arlington, Va., March 28-30 — Contact: Dr. Howard Sholl, University of Connecticut, Storrs, Conn. (203) 486-5957.

Strategic Planning for Information and Systems. San Diego, March 28-30 — Contact: Barnett Data Systems, Rockville, Md. (301) 762-1288.

Voice '90 Conference and Exposition. Anaheim, Calif., March 28-30 — Contact: Voice '90, Houston, Texas (713) 974-6637.

Trading Room Infrastructure: Strategic Choices for Operating System, Network Transport and Database Software. Binghamton, N.Y., March 29 — Contact: Waters Information Services, Binghamton, N.Y. (607) 772-8086.

TypeX, Typographic Imaging & Publishing Show. Philadelphia, March 29-31 — Contact: Edgell Expositions, New York, N.Y. (212) 418-4118.

APRIL 1-7

Advanced Technologies for Improved Productivity. Orlando, Fla., April 1-4 — Contact: Development Center Institute, Indianapolis, Ind. (317) 846-2753.

International Congress on CIM Databases. Cambridge, Mass., April 1-4 — Contact: Management Roundtable, Boston, Mass. (617) 232-8080.

SAS Users Group International Conference. Nashville, Tenn., April 1-4 — Contact: SAS Institute, Cary, N.C. (919) 677-8000.

Spring International Development Center Conference. Orlando, Fla., April 1-4 — Contact: Development Center Institute, Indianapolis, Ind. (317) 846-2753.

Conference on Human Factors and Computing Systems. Seattle, April 1-5 — Contact: Toni MacHaffie, CHI '90, Beaverton, Ore. (503) 591-1981.

Electronic Imaging Forum VII and Pixel Works. Boston, April 2-3 — Contact: Glenda J. Martin, Shearson Lehman Hutton, New York, N.Y. (212) 298-4950.

Broadband/Sonet: The Platform for Next-Generation Networks. Washington, D.C., April 2-4 — Contact: Telecommunications Reports, Washington, D.C. (202) 347-8435.

Distributed Network Computing and Object Environments. Cambridge, Mass., April 2-4 — Contact: Patricia Seybold Office Computing Group, Boston, Mass. (617) 742-5200.

Automated Manufacturing Exhibition and Conference. Greenville, S.C., April 3-5 — Contact: S.C. State Board for Technical and Comprehensive Education, Columbia, S.C. (803) 737-9356.

1990 Conference of Information Management. New York, April 4-5 — Contact: Gartner Group, Stamford, Conn. (212) 339-0290.

EIS '90. San Francisco, April 4-6 — Contact: EIS Institute, Newton, Mass. (617) 964-4555.

Interleaf Users' Conference. Cambridge, Mass., April 4-6 — Contact: Robin Bresner, Interleaf, Cambridge, Mass. (617) 577-9813.

VHDL: The Emerging Design Standard. Boston, April 4-6 — Contact: Dr. Joel Schoen, Mitre Corp., Bedford, Mass. (617) 271-2230.

Financial Executives Institute Information Management Conference. Chicago, April 5-6 — Contact: FEI, Morristown, N.J. (201) 898-4629.

Midwest Graphics '90. Rosemont, Ill., April 5-7 — Contact: Graphic Arts Show Company, Reston, Va. (703) 264-7200.

Recent Advances and Successful Applications in Expert Systems. New York, April 6 — Contact: The Institute of Management Sciences, Providence, R.I. (800) 343-0062.

APRIL 8-14

Software Law '90. San Francisco, April 9 — Contact: Karen Thomas, Wm Thomas Public Relations, Northport, N.Y. (516) 266-1652.

Voice, Data and Video Networks. Las Vegas, April 8-11 — Contact: College and University Telecommunications Administrators Association, Lexington, Ky. (606) 252-2882.

Business Forms Management Association Symposium. Atlanta, April 8-12 — Contact: BFMA, Portland, Ore. (503) 227-3393.

Association for Information and Image Management Show. Chicago, April 9-12 — Contact: AIIM, Silver Spring, Md. (301) 587-8202.

SIM seeking nominations for IS partnership awards

CHICAGO — The Society for Information Management (SIM) is seeking nominations for its fourth annual Partners in Leadership Awards. The awards are presented to two companies for using information systems strategically thanks to the partnership of IS and business executives.

Nominations are due at SIM headquarters by April 30. They should detail innovative IS applications in areas such as marketing, customer support, engineering, sales, research and development and manufacturing.

Last year's winners were K Mart Corp. for its retail automation program and the Singapore government for its electronic data interchange trade processing system, Tradenet.

Begun in 1987, the awards have also honored Sara Lee Corp., Du Pont Co., Frito-Lay, Inc. and Lithonia Lighting, a division of National Service Industries, Inc.

This year's winners will be notified Aug. 1 and announced to the public shortly thereafter. Awards will be presented at the SIM Annual Conference held Sept. 11 in New York.

The selection committee consists of IS executives, consultants, college professors and researchers.

Nomination forms are available from Executive Director Henry Givray at SIM headquarters, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

Pick one thing you want in transaction processing:

1. Fault-tolerant
2. Distributed
3. Integrated
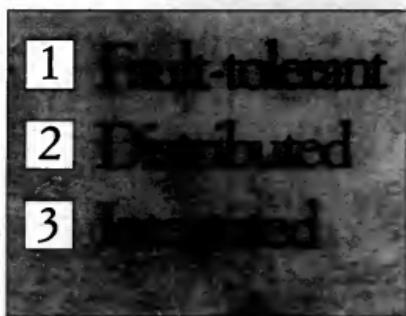
Computerization

are the benefits of distributed processing, which you thought would replace the mainframes — but it turns out that you need them both. This also includes each employee's PC — yet another indispensable tool — which you might have thought was the same as distributed processing, but it is not.

Since PCs are becoming more and more complex, it won't be long before corporate profitability is deemed to be conditioned on the next gadget — no doubt a solar-powered, multi-megapixel picocomputer, with a built-in cellular telephone and fax unit that prints out data from under your hat.

There's also a great enthusiasm for electronic mail, which helps us to send more internal memos — although it's not much use for communicating with customers, which some of us used to think was a nice idea. It looks like we were wrong, because the IT department has now introduced a voice-mail system that allows you to avoid direct phone contact with customers altogether. This time-saving system will enable us to improve our administrative efficiency with desktop publishing, which is turning every employee into a latter-day Gutenberg. Requests to take vacations already start-le us by arriving at our desks resembling the front page of *The Wall Street Journal.*

The next turning point will occur with a project called relational database. We can

now access the answers — in real time, to the nearest decimal point — to numerous questions which include once-unsolvable corporate conundrums, such as how many left-handed sales representatives we have in Minneapolis who speak Urdu.

If you are one of the fortunate few who regard these scenarios as science fiction, there's no need to read on. If, however, these parables look as if they've been plagiarized from your own corporate casebook, the rest of the article is aimed at providing you with a solution.

The earlier computers were both expensive and complex, and because of this, we centralized them into a single function. We created a new profession of computer specialists. By contrast, modern computers of comparable power are both inexpensive and simple. Because they are inexpensive and simple, we no longer need to centralize them, nor are we in need of specialists.

If we were suddenly presented with the modern computer as a *fait accompli,* we would deploy it in our business in a very different way. There are two reasons why we don't.

First, as CEOs, we are conditioned by previous experiences to think of the computer as expensive and complex; therefore, the obvious solutions seem counterintuitive. Our mental processes are not so ossified as to be incapable of any solution at all, but the microelectronic revolution

has been too rapid for this to have occurred. Therefore, we tend to lack the courage of convictions that we readily apply to comparable opportunities.

Second, computer specialists have an understandable career interest in guaranteeing and preserving the previous expense and complexity because they have become more interested in the computer than in the business.

The combination of these conditions means that whenever we consider an investment in IT, we should ask two questions: How would I approach this decision if we had never made any previous investment in IT? And, what would my IT group be proposing if they were more interested in the business than in the computer?

At this point, IT should have become a disposable good. Unfortunately, the way in which we attempt to run it at present makes that impossible. Instead of regarding IT as a natural component of any business function, under the "vertical" control of each local line manager, we have distorted the corporate structure by "horizontally" pulling IT out of the matrix.

One of the most effective ways for a CEO to change his own attitude toward computing is to *use* a computer. Many CEOs adopted this approach when the spreadsheet became available, and some found it genuinely useful. However, the problem with the spreadsheet, from a CEO's viewpoint, is that there are no interesting problems to solve. The recent availability of full-scale executive information systems that fit onto desktop or laptop PCs has changed the ground rules.

In implementing executive information systems for many CEOs, I've noticed that after a month or two of use, a CEO starts to form a robust and effective "top-down" view of the information that's coming up the pyramid. He develops rather strong opinions about whether anyone really needs to know about all those left-

handed salesmen. He begins to see why the IT people want you to spend a substantial amount of money on real-time information flow at every management level, because that's a technically exciting progression from real-time information flow at the transaction processing level.

In essence, you find yourself using your executive information system as a short-cut toward developing the same kind of personal rapport and gut-feel for discussions about IT as you already possess for discussions about marketing, engineering and everything else.

There is light at the end of the IT tunnel, and it doesn't have to be the light of an oncoming train. Your IT group contains many outstanding people who will make excellent businessmen. Your business subsidiaries contain many outstanding people who will thrive for a year or two in IT. There is no need for confrontation; this can be a win-win strategy.

The stakes are enormous. Apart from saving a literal fortune on unnecessary IT developments, you will find that the redirection of IT effort toward real business goals will provide major bottom-line improvements.

The honeymoon with IT is over; let the real marriage begin. If nothing else, the enlightened partnership that will follow should save you from the kind of horror stories that emerge when computerization goes wrong, as it did for a well-known London department store that decided to mail-shot its account customers. Unnoticed in the 100,000 letters was one delivered to:

Mr. H.R.H. Prince
Charles Buckingham Palace
The Mall, London, SW1
Dear Mr. Prince,
Have you ever considered the benefits of buying a new car? Just think what your neighbors in "The Mall" would say if they saw you driving into Charles Buckingham Palace in a brand new Ford Fiesta complete with motorized sunroof and matching alloy wheels?

Apparently, the neighbors' views were not recorded.

BREADTH

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BOOK REVIEW

Why white-collar raiders shouldn't need to wear black hats

CORPORATE MAKEOVER
By Harvey H. Segal
Viking Penguin, Inc., $19.95

By changing one term — "corporate takeover" to *Corporate Makeover* — Harvey H. Segal establishes his view of the mid-1980s phenomena of mergers, leveraged buyouts and friendly and hostile takeovers. It was, he says, just what U.S. corporations needed.

While the Peter Druckers of the world would hold the hostile takeover responsible for the nation's failing competitive position in the world economy, Segal takes the opposite tack. In his view, corporate raiders were merely "ousting incompetents," thereby lending the way to corporate efficiency and competitiveness.

The root of the problem in corporate America, Segal says, lies in the fundamental rift between shareholders and executives, or who owns and who controls. And Segal leaves no mystery as to which side

he is on.

To Segal, the takeover story is one of greed — but not on the part of the raiders. Rather, it is executives — more interested in corporate (and, not coincidentally, their own) wealth than corporate value — who lost control of their companies. By so doing, they put the corporation and their own positions in jeopardy.

From the moment incorporated organizations rose in popularity, he says, executives pursued paths that proved to be only self-serving. Over time, perks such as corporate planes, sumptuous offices and high salaries became given, with no

thought as to who was footing the bill — the true owners, that is the individual stockholders.

One example Segal cites is the conglomeration craze of the '70s. While companies grew, so did executives' salaries. Profits, however, went south.

By the 1980s, Segal notes, potential raiders realized the disparity between the market value of corporate stocks and the profits that could be realized by dismembering the concern and selling its parts. Enter Drexel Burnham Lambert, which was quick to buy out companies with low-value junk bonds, restructure them and then sell them off for a huge profit.

It is at this point, when more companies are private and stocks are in the hands of a few shareholders, that it is possible to create what Segal calls a "new corporate look."

With the true owners of the company in charge, Segal envisions "a very tightly run company, focused on a single line of business . . . in the hands of a few top owner-managers."

The new "owner-manager," having part-ownership in the firm, would presumably have a vested interest in keeping corporate profits high. This, Segal says, leads the way to a more efficient and competitive organization.

An unclear vision

Unfortunately, by the time we reach this vision of the owner-manager, the book ends. The vision remains just that, unfocused and without details. It is presumed that the new owner-manager will not become disinterested in the company and diversify stocks.

However, considering history and the temptations implicit in acquiring wealth, it is possible that Segal is being too idealistic. He rails against the greed of today's executives, but this new "owner-manager" is still human, after all, and not a demi-god.

By the time Chapter 2 begins, it is evident that Segal sees corporate raiders — even though some line from Boesky are convicted criminals — as corporate cleansers, purging incompetent and avaricious managers from U.S. corporations.

If Segal were to convict the likes of Boesky and Michael Milken, it would be for placing a stigma on an effort to change corporate control. "Changes of control," he says, "are essential in revitalizing U.S. industry and resolving the conflicts of managerial control."

Even if it's hard to agree with Segal's handling of the corporate raider, it is easier to side with him on the need to reform the wasteful ways of corporate America. Although more philosophical than practical in his approach, he does offer pragmatic strategies for internal reform — such as aligning managerial salaries with corporate performance and providing targeted rather than expected managerial bonuses.

Many people may never look upon the corporate raider as a hero. But with more companies going private as the result of wholesale raiding, it is hard to disagree that the stage is set for a closer relationship between ownership and control and — hopefully — more interest in profitable companies.

— MARY GROVER

Grover is a Computerworld senior editor, product spotlight.

Who does what is a tricky multiple choice

BY LARRY STEVENS

Choosing to use a systems integrator is often an emotionally or politically difficult step, and it's one that information systems managers do not take lightly.

"It's the midair refueling in the middle of a thunderstorm," says Lee Risio, director of management science information services at Kendall McGaw Laboratories, Inc. in Irvine, Calif., and a former B-52 bomber pilot. "You have to connect an airplane that desperately needs gas with a tanker that has an awful lot of gas. Your plane gets heavier [as it refuels], but you have to maintain the same posture and position the whole time."

Whether refueling systems or aircraft, the longer the process takes, the more complex it becomes, Risio adds.

While the decision-making process differs from company to company, the variety of factors considered by managers facing large integration projects may be instructive to others who find themselves in the same spot.

Systems integration vendors now regularly take on smaller pieces of a project, and firms are gaining wider latitude in determining the relationship between their internal staff and the outside supplier. Because of the variety of available services, IS managers are now faced not only with the question of whether to use a systems integrator but also with that of which tasks are best handled by outside help.

Speaking broadly, systems integration services can generally be broken down into eight categories or phases. They include designing the system; performing the feasibility study; analyzing resource requirements (staffing, hardware capacity planning and so on); programming the software; installing the physical and logical links; testing hardware, software and user acceptance; training; and network

Kendall McGaw's Risio says assigning tasks for a major integration project is complex

or facilities management.

There *are* some companies for which the question of whether or not to use an outside integrator is an easy call, but they are mere the exception than the rule. For some companies, the corporate philosophy or culture rules out the idea of bringing in outsiders. In other instances, economic realities make the decision to contract out work fairly automatic.

The Travelers Corp., a major insurer in Hartford, Conn., falls into the first category. Despite the magnitude of a recent project involving integrating dozens of vendors' products into a network that includes voice, data, facsimile and imaging transmission, Trav Waltrip, vice-president of telecommunications, says he never considered

seeking outside help.

"We did not analyze costs or other benefits of hiring a systems integrator," Waltrip says, "since our company has a philosophical commitment to doing all projects using in-house staff."

To realize that commitment, Travelers has had to develop strict hardware and software standards that correlate with the expertise of its IS staff. The only time that Waltrip has to resort to an outside systems integrator is when an integration project contains pieces that do not conform to those standards, which usually means something involving corporate clients. "If one of our clients wants an application that is perfect for him, it would be a shame to say that he can't have it because it doesn't fit our standards," Waltrip explains. In such

a case, "we will have a systems integrator integrate that product into our network."

Over the rainbow

On the other end of the spectrum are such companies as a plastics manufacturer in Minnesota, which, because of limited resources, has no choice but to hire a systems integrator.

A recent project at the plastics firm called for the integration of several applications, including inventory, payables and order entry, into a single network. The elements of the system involved different vendors' software written in a variety of languages, minicomputers from Hewlett-Packard Co. and an IBM mainframe. Physically, the network had to span 15 factories and customer-service centers. "There was never a question of whether we would hire a systems integrator, but only of which one we would hire and specifically what we would have them do," says the firm's IS manager, who declined to be named.

The company did not have the inside expertise to complete the project, and management was

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Stevens is a free-lance writer based in Springfield, Mass.

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concerned about fixing the price. "I knew how much money was available for the project," the IS manager says. "I didn't want to reach that limit and still have 10% or 20% of the project to go."

Off-loading price risk is one of the major reasons Chris Brown Sr., manager of the information systems group at Ernst & Young in Boston, sees his clients using integration services. "Most of the time," he says, "clients would be willing to budget $10 million for a project rather than take the chance that they can do it themselves for $7 million."

While the actual integration work is the plastics company was done by a systems integrator, in-house staff was responsible for designing the network. This involved appointing a project team of about 50 people from all areas of the company to hammer out the system's features.

According to the IS manager

Travelers' Waltrip

at the plastics firm, "We didn't want help in the design process, because we felt we wanted to hang on to at least that much control. When we sent this project out to bid, we had a pretty comprehensive spec sheet."

Tom Ruais, vice-president of national accounts at Atlantic Data Services, Inc., a systems integrator in Quincy, Mass., believes that retaining some measure of inside involvement is wise. Even if an organization has very limited resources at hand, he says, it should try to take on at least part of the integration project.

"Companies do themselves a disservice by turning the whole project over to an outside firm," Ruais says. "A systems integration project should be a bridge that takes you from what you cannot do in-house to what you can do."

But how do IS executives determine which parts of an integration project to retain and which to assign? Both the answer to that question and the method used to arrive at an acceptable formula varies, but one of the critical yardsticks that some companies use is the extent to which the new system will require ongoing skilled support.

"We used two criteria to decide what parts of the project to keep in-house and what to farm out," says Douglas Anderson, telephone systems coordinator at Southern California Rapid Transit District (SCRTD) in Los Angeles, describing the thought process that governed his handling of the integration effort involved in creating a customer service system.

"Areas that we would have to maintain we wanted to do in-house to develop expertise in it," Anderson says. "Specialized areas that required particular skills for development, but not for maintenance, we farmed out."

Beast of unburden

The new system at SCRTD was intended to lift some of the call burden placed on SCRTD telephone operators by requests from passengers for detailed directions on routes from one location to another. It allowed operators to automatically route such calls to a computerized voice response system.

Accomplishing this required several kinds of integration, Anderson says. First, the agency's IBM 3084 mainframe had to be connected with a speech synthesizer system from Speech Plus, Inc. in Sunnyvale, Calif. The problem was compounded by the need to convert IBM text code to ASCII. SCRTD also had to link the Speech Plus system with Northern Telecom, Inc.'s SL-1 switch for the actual call routing.

SCRTD programmers developed the database. For the networking, however, Anderson hired Megadyne Information Systems, Inc. in Santa Monica, Calif. "Networking is something you do once," he says. "There is little maintenance; you don't want to hire people to do the maintenance."

Speech Plus worked with the agency to integrate its system to the database. Megadyne worked with Speech Plus to integrate the voice system to the switch. Speech Plus linked its machines together and developed a customer system based on specifications from SCRTD. "We did the design of the project ourselves, but we did it in the context of discussions with Speech Plus," Anderson says.

RPP Corp. in Lawrence, Mass., also chose to do the front work on its integration project. The industrial products manufacturer was tying together several micro-based systems, such as accounts payable and receivable, shipping, inventory and sales, so the various departments would be notified when orders were shipped. Susan Thomas, a network administrator, says RPP started by doing all the work itself. After the network was up and running, however, the staff became loath to trying to maintain it. RPP now depends more heavily on outside help. "We have the skills to do

the job," Thomas explains. "We just don't have the time."

Time was also a factor in Rino's thinking five years ago when, as a consequence of the sale of the company, McGaw was forced to create a complete order-entry system similar to one that had formerly been provided by its corporate parent — in the space of four years.

The new system, like the old, would need to accommodate links from a wide variety of hospital systems to McGaw's IBM IMS database. It would have to duplicate the process of routing incoming hospital orders to the nearest stocked warehouse and match a response time for order confirmations and shipping dates that averaged only a few seconds.

To maintain current levels of efficiency, it was also imperative that the new system connect dynamically to several other McGaw systems: the inventory system, which tracked inventory levels by warehouse; the accounts-receivable system, which billed customers for each ordered part; and the purchasing system, which automatically placed orders with McGaw's suppliers when inventory dipped below a certain level.

The primary task was to replicate all the important features of the previous system, and therefore, Rino decided that the first three pieces of the job — designing the system, performing the feasibility study and analyzing resources — could best be done in-house. He reasoned that the staff was familiar with the old system, the features of which would be used as a guide.

In the design of the new order-entry system, Rino gathered input from end users who drew up a wish list. Users were asked to identify features by priority: those that were absolutely

Baker & Taylor's Gorbacz

essential, those that were important but that the company could do without if necessary and those that users would like to have but were not important.

This three-tiered list gave Rino latitude in choosing whether

to hire a systems integrator. If he decided to use his in-house staff, he could design a system that included only the must-have items and then add features from the other two lists that could be realistically accomplished given the available resources and time. He could also choose to use the entire list as a specification sheet in a bid solicitation to systems integration vendors.

After the design phase, implementing the system would require three broad steps: developing new software, linking the new software to McGaw's IMS database and enabling the mainframe to communicate with diverse hospital systems.

Three concerns

In order to determine which, if any, pieces of the project could best be farmed out, Rino and his managers considered each step using three questions: First, did they have the skills to handle the task in-house? Second, if they did have the skills, could they afford

to remove the current staff from the day-to-day operations for the time needed to complete the job? Third, if they had to bring in new staff, could those people then be used by McGaw after the project was completed? For the sake of economy, Rino decided that if it were reasonable to use in-house staff, he would.

Rino's team found that it would be both feasible and desirable to connect the database to customers' systems from the inside. "We knew more about our IMS database and our customers' systems than anyone else. We would have had to train the systems integrator just to get them up to our level," Rino says.

A more daunting problem was the creation of the order-entry system itself. McGaw had plenty of network specialists on staff but few programmers. Any new network experts that Rino might hire for the project would be useful in maintaining the system after installation, but programmers would quickly became a fifth wheel.

With that thought in mind, Rino decided to hire McDonnell Douglas Information Systems Co. to create the order-entry system and the software links from it to both McGaw's database and customers' terminals. Rino estimates that McDonnell Douglas' work represented about 50% of the project but only about 20% of the actual integration, or linking, work. Still, he admits that he slept better because McDonnell Douglas kept a project leader on site. "It was good to know that someone else could step in and help if we got into trouble," he recalls.

When the system was nearly completed, Rino found that he didn't have the hardware capacity needed to do comprehensive testing of the system. Therefore, he turned to McDonnell

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Of snowflakes and outside influences

No two systems integration projects are really alike, so there are few, if any, general guidelines that apply across the board. There are, however, certain situations in which companies seem to lean toward using outside assistance. Systems integration vendors say they are most likely to get a call for business under the following circumstances:

- A project involves a substantial upgrade in technology, such as a new generation of hardware or software or a new networking strategy. "Most companies have the in-house expertise to handle development work with current technology," says Chris Brown Sr., manager of the information systems group at Ernst & Young in Boston. However, "when the technology changes, they either have to scramble to hire the new skill sets, or they have to call in a systems integrator," he adds.

- The project has a heavy emphasis on communication. According to Karen Engel, director of business development for integration research at International Data Corp. in Framingham, Mass., communications "is a key area of vulner-

ability for many companies."

- The company, as a whole, is relatively stable. Pluses for which change is not an everyday occurrence are more likely to use a systems integrator than those that are aggressively purchasing other companies, according to Judy Selig, vice-president and general manager at Wayne Information Solutions Group, Inc. in White Plains, N.Y. Companies that are behind most of their competition in some area of technology are good prospects for systems integration. For instance, "if a bank doesn't have an ATM system, or an airline doesn't have a good reservation system, they are going to go outside and have one created for them, no matter what it costs," Selig says.

LARRY STEVENS

Douglas for that service as well.

Another factor in Rizio's decision to do most of the integration in-house had to do with the special conditions surrounding its inauguration. The system had to go on-line over the course of one weekend, and without the luxury of running redundant systems during a trial period, Rizio and his managers became nervous enough to want to keep most of the project within their immediate control.

Rizio remembers, "We had numerous meetings about the conversion weekend. We were confident because we were so prepared — overprepared, really — for it. Frankly, I think we would have been nervous wrecks if we had to sit back and trust the systems integrator to get it right."

Rizio says that if he could do

> ## "MOST OF the time, clients would be willing to budget $10 million for a project rather than take the chance that they can do it themselves for $7 million."
>
> CHRIS BROWN
> ERNST & YOUNG

the project again, he probably would make most of the same decisions. He admits, however, that with hindsight, he might lean more heavily toward the direction of outside assistance.

For example, Rizio says he didn't realize that being acquired by another company would require as many changes in corporate culture as it did. Although he and his staff managed to adapt, working within the new culture made day-to-day operations difficult at times. While he prefers not to be specific about these problems, he says that they placed a strain on the integration project and made him wish more than a few times that he had farmed the whole job out.

If Jerry Garbacz has any second thoughts about the way he handled a systems integration project at Baker & Taylor Books, Inc., they have more to do with wishing he had been able to keep more of the project in the hands of his own staff. Garbacz, a group executive at Grace Specialty Businesses in Stamford, Conn., of which Baker & Taylor is a division. He was forced to rely heavily on outside assistance in putting together a new system that would not only handle orders from libraries and book retailers but also connect with inventory records to ensure proper routing and keep track of customer expenditures.

Garbacz came to the project

with the basic premise that he needed his staff primarily for long-range plans and ongoing programs and that he wanted to maintain a stable base of employees dedicated to systems development. The order-entry system, which would require a large-scale effort, went beyond the bounds of what could be accomplished without depleting staff resources and threatening day-to-day operations.

In order to determine which tasks could and should be performed in-house, Garbacz says he considered each part of the project in light of two factors: where the expertise lay and where the data lay. If the data resided inside the company — for example, his payables or inventory applications — he would try to do all or most of the work in-

house, using outside experts as consultants. If the task involved data or hardware that resided outside the company — such as installation of terminals or libraries — he would depend on the systems integrator, American Management Systems, Inc. (AMS) in Arlington, Va.

Although Garbacz made sure that his in-house staff worked closely with the integrator to

provide expertise about the book business, he estimates that AMS did about 90% of the integration work.

Garbacz also commissioned AMS to modify and integrate an off-the-shelf software package into his in-house database because he wanted to complete the project quickly. Like Rizio, Garbacz says he believes that the exigencies of the moment forced

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ProSeries Software is a group of products that makes it easier to work with DB2. With ProSeries you can manage DB2 objects without SQL. With its ISPF-like interface, you can use DB2 applications more efficiently. And since it also lets you embed SQL directly into

his hand somewhat. "Viewed strictly from the financial side and ignoring that we had to convert our system quickly," Garbacz explains, "buying software that we couldn't easily maintain on our system was a mistake. Eventually, that system would not give us the capability of expanding the way we wanted to, and we eventually had to bring it in-house anyway."

Garbacz's strategy of using an integrator at the outset and then gradually taking over later phases of the job is a relatively frequent approach.

According to Ernst & Young's Brown, "It's not uncommon for us to go into large projects with a pricing strategy which includes a fixed price portion for the initial phases and estimates for subsequent phases.

Many times, customers reach a milestone and decide they can do the rest themselves."

Early risks

Also, Brown adds, much of the risk involved occurs in the early stages, as the new systems are put on-line. The further a project proceeds, the less risky it becomes and the more easily it is handled in-house.

The decision to use a systems integrator is one that takes into account a host of factors, including finances, resources, emotions and politics. The decision will probably never be based on science and will continue to be a judgment call. But, as Garbacz says, "It is a decision that you will likely make only once in your career. It's worth giving it a lot of careful consideration." •

You say tomato

Systems integration in the commercial sector can assume many forms. Unlike government contracts, commercial systems integration projects are seldom all-or-nothing propositions. For the most part, corporate information systems managers can pick and choose which parts of the project to farm out and which to keep in-house.

According to Karen Kogel, director of business development for integration research at International Data Corp. in Framingham, Mass., "With federal integration jobs, a company like Electronic Data Systems will take on the project from A to Z. But in systems integration has moved into the commercial sector, a bastardization has occurred. Now, most projects are more of a partnership between vendor and client."

Systems integration vendors, however, still differ in how much project sharing they like to do. For example, Chris Brown Sr., manager of the IS group at Ernst & Young in Boston, says that a project often becomes more difficult when the client wants to do major pieces of it in-house. As an integrator, he finds that when his company brings in the hardware, creates the software and builds the network, it has a better understanding of how to integrate all the pieces.

According to Brown, it is possible to combine in-house involvement in systems integration projects with outside management. Ernst & Young often has members of the client company's staff working on a project, he says.

Other firms may be looser in their approach. Tom Roan, vice-president of national accounts at Atlantic Data Services, Inc. in Quincy, Mass., is pragmatic. "Obviously, we think it is best when we do most of the job," he says. "But customers have limited budgets, and sometimes they call us in when a project is partly completed. We're willing to work with the customer's needs."

LARRY STEVENS

As Global Competition
Systems Must Change To

Searching for the best odds

BY ALAN RADDING

When it comes to systems integration, complexity seems as even as you try to figure out exactly where to start.

Consultants specializing in systems integration argue that it is impossible to quantify specific gains from the integration of any particular system. Still, there are applicable rules of thumb.

Ray Lane, head of the information systems group at Booz, Allen & Hamilton, Inc. in Dallas, says. "Individual component systems like payroll are not primary candidates for integration, although you still must tie them in eventually."

Instead, Lane focuses on the big-ticket items. For instance, he suggests that retail and product marketing firms start by integrating the systems used to collect and analyze scanner data from retail point-of-sale (POS) systems. These systems require a high level of vertical and horizontal integration, but "the payback will be highest," he says. The payback comes mainly from the strategic business advantages provided by the system.

In manufacturing, Lane recommends that integration be focused where it can both cut costs and assist with restructuring aimed at speeding product development and shortening time to market. "These are systems that transcend engineering or manufacturing. You want to take a holistic approach to manufacturing," he believes.

In service companies, integration must focus on "the front-end distribution systems," Lane says. These are the systems that take orders, provide real-time confirmation of orders and allow continuous status updating of customer orders.

In any industry, the choice of which systems to integrate first — or at all — must be driven by business, not IS, says Dudley Cooke, president of Executive Insight Group, Inc. in Bryn Mawr, Pa. "It may be that when you go over your systems in light of the business plan, none of the existing systems should be integrated, at least initially. Maybe your integration should focus on a whole new initiative," he says.

Gad Selig, vice-president and general manager at Nynex Information Solutions Group in White Plains, N.Y., advocates a similar approach. When it comes to selecting integration candidates, he says, let business opportunity be your guide.

The biggest systems integration successes, Selig says, are systems developed in response to a business need, such as the large airline reservation systems or retail POS systems. "You start with a competitive problem, or you see an opportunity," he explains.

"Not every job falls into the area of systems integration. You must separate simple replacements or upgrades from systems integration," Selig warns. Systems integration generally involves an information component and a communications component. A system upgrade or replacement can be included

in an overall systems integration effort if it benefits the firm from a business standpoint.

To determine how much payback an integration effort would provide, Bob Walsh, vice-president at Boston Systems Group, a management consultancy in Boston,

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> ## N OT EVERY JOB falls into the area of systems integration. You must separate simple replacements or upgrades from systems integration.
>
> GAD SELIG
> NYNEX INFORMATION SOLUTIONS GROUP

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too, first looks at the current bridges between the systems. "I look at the manual bridges, the connections that are going on now and whether people are running piles of paper back and forth," he says.

Next, Walsh determines the cost of maintaining those existing bridges. Then he conducts an extensive cost-benefit analysis, comparing the current situation with the expected result of systems integration.

Doug Walder, director of systems integration at Input, a market research firm in Vienna, Va., advises clients to set up a list of priorities to determine which systems should be integrated. Again, the priorities are deter-

mined by the business needs. "It's the 'What gives me the most competitive advantage' thing," he says.

For the most part, consultants say that the biggest ventures yield the biggest gains. Payoffs come from cross-functionality, they say, and effective cross-functionality often requires big, multidisciplinary efforts that splice together infor-

mation systems and communications projects.

There are those, however, who argue that bigger is not always better. Tom Roan, vice-president of national accounts at Atlantic Data Services in Quincy, Mass., a banking industry systems integrator, is one of those dissidents. His strategy is to minimize the risks and loss of control that often accompany large, cross-functional systems integration efforts.

In banking, where acquisitions are common, Roan says that the first system he will choose to integrate is a relatively small application that can be completed quickly. "That will establish the momentum for a

much larger systems integration effort," he says. The high-visibility misson-critical systems may produce the biggest yield when integrated, but they also carry the highest risk.

Roan favors starting with internal financial systems rather than systems that directly affect customers or involve widely scattered groups throughout the organization.

"Start with financial control. There are a limited number of people with access to the system, and because of the relatively fewer transactions on a daily basis, it is easy to maintain the old system in parallel," he says. As a result, "you can maintain control and minimize risk."

After integrating the internal control systems, Roan looks at the production applications and the communications systems. If the old communication systems will be able to manage some level of communication with both the new and the old systems, then he turns the integration effort toward the production applications. "If you have some communications flexibility, you can hold off the networking," he says.

Only after all these bases have been covered does Roan suggest that clients think about integrating the major, mission-critical functions. "I realize this approach may reflect the risk-averse nature of banking," Roan notes. However, he adds, it's a workable strategy for any business that isn't comfortable with go-for-broke risk-taking. ●

Radding is a free-lance writer based in Newton, Mass.

What is a road without travelers?

You can't build intersections where none have existed before without giving some hard thought to traffic patterns and ingrained driving habits — at least, not if you want to avoid snarls and collisions. However, says Ray Reddit, that is exactly what most firms do with systems integration efforts — build the connections and then spend months coping with unanticipated effects on work flow and job roles.

"The way systems integration projects usually unfold," says Reddit, who is president of Cogntech Services Corp., an Easton, Conn., consulting firm, "all of the initial thought is concentrated on simply pulling together the loads of information that are needed in one place. It is only after the fact that anyone begins to analyze who uses that information and what effect the changes will have on the way they work."

A prime example of the disruptions that can result from treating systems integration as a purely technical event, she says, is a worldwide financial services organization that revamped its information systems structure, combining credit/collection and customer service data in a single relational database.

When these two groups, which were located in two different parts of the country and never had any previous interaction, were suddenly made joint tenants of the same database, the result was confusing and frustrating for both sides, Reddit says. Used to operating as independent entities and making changes to data structures on a whim, the credit/collection and customer service groups collided frequently, inadvertently closing off each other's access to

critical data because of ad hoc database revisions and violating boundaries by answering customer questions that lay outside their respective areas of authority and expertise.

In this case, Reddit says, the IS group was actually part of the problem in an active sense. It not only failed to foresee and plan for the organizational changes that the business departments would face as a result of the systems integration, but it also continued to support the two departments as separate entities. In fact, most of the alterations to the database that resulted in lockouts were performed by the two separate systems support staffs, which simply continued to operate on a business-as-usual basis in their responses to user requests.

According to Reddit, the problems were eventually solved by integrating the organizations as well as the systems. The company revamped its departmental structure to combine the two units physically and operationally. All personnel were cross-trained, so that anyone dealing with a customer could accurately answer questions relating to either area. The resolution didn't come quickly, however. All told, she says, it took eight years to bring the work processes to the same approximate degree of integration as the information systems.

This company's experience is not unique, according to Reddit. Impact planning is something that is usually either postponed or forgotten entirely in systems integration projects, and the affected departments are left to wrestle with the results.

JOANNE KELLEHER

Building the information-based corporation

Here's how IS execs can help create solid business foundations

BY DAVID R. VINCENT

Many senior executives feel let down by their information technology organizations — and well they should. Many were led to believe that throwing technology at problems would guarantee results. It hasn't.

Is management's fascination with the promise of information technology over? A recent working paper from MIT's "Management in the 1990s" program reports that corporations would have earned a better return by investing the same money in noninformation technology capital such as production equipment. What's more, an economist at Morgan Stanley Group, Inc. in New York claims that in the service industry, many large investments in information technology have actually resulted in *decreased productivity.*

Nevertheless, while some companies disparage their investments in information technology, others foresee that it still has enormous potential for a financial return. Some corporations are realizing significant performance gains by adroitly balancing the mix of strategy, management skills and information technology.

During the next decade, business corporations will become the engine of change in industrialized countries. Global competition requires corporations to replace obsolete, top-heavy management structures with lean, energetic, flexible organizations — and information technology will play a major role in that change.

To achieve this restructuring, forward-thinking corporations are simplifying their capital structures and decentralizing their decision-making. Information technology

Vincent is president of Information Group, Inc., an international management consulting and education company in Santa Clara, Calif.

makes new forms of capital and organizational management possible.

The conscientious valuation of information is a necessary practice in both good times and bad. The corporation should consider the value, useful life and future costs of maintenance when creating the information base. The investment includes all labor and information technology costs.

The information executive will easily earn a seat on the executive committee when he can clearly demonstrate that value was added to the business by the information investment. However, the information executive needs help from the economic and accounting disciplines to accomplish this task.

In good times, little thought is given to useless information that may be created or to vital information that may be missing. As long as profits and/or return-on-investment goals are met, the information investment remains in the background.

In times of economic stress, companies reduce payroll costs to protect the viability of the enterprise. In reducing payroll, the organization doesn't consider the value of its information asset. Therefore, the weeding-out process of nonvital costs is haphazard at best.

The first step toward determining the value of the information investment is to find out the business' reason for the collection of information. The second is to assess the ability of the information-handling system to provide the right information effectively. It should arrive on time and at the right place. It should also be properly formatted and of high quality, and it shouldn't break the budget.

The resulting assessment will help document the impact of information on the success or failure of the enterprise. Ultimately, accountants will assess the value of the information investment and the added value provided by information systems by measuring

- **Learn to measure IS value**
- **Different cultures need different approaches**
- **Satisfying 'stakeholders' is key**

the future cash flow (see chart page 76).

"Culture" describes the internal factors that are important to management, employees and the company at large, such as systems for reward and performance. Culture is the personality of the organization.

The way your corporation's employees and executives behave is a result of knowledge brought into the organization and transferred within the organization.

INTERNAL data and information sharing gives the new corporation power over its competitors. Internal partnerships create value for a firm's stakeholders.

nization. You should view today's systems as vehicles for creating behavior that will fulfill corporate strategy.

Several identifiable corporate illnesses can also negate any possible return on information technology investment. The following vestiges of the industrial age must be removed before organizations can maximize technology investments.

• The fortress mentality. This is a universal phenomenon in all corporate cultures. The mentality comes from an animal's behavioral characteristic called the territorial imperative. When other beasts invade their territory, animals are ready to defend such territorial rights to the death. This behavior is also a major obstacle to information

sharing and realizing the potential of the information technology investment.

• Pecking-order systems. The territorial imperative also exists within corporations. It usually arises when it comes to the issue of who owns certain corporate assets, especially information. Top management implements lines of demarcation with official corporate pecking-order schemes. Does your firm allocate office space as follows:

1) Clerical workers are entitled to 100 square feet of work space.
2) Supervisors are entitled to 150 square feet.
3) Managers are entitled to a partitioned work space and a telephone with two extensions.
4) Directors are entitled to a larger desk, two side armchairs and a worktable.
5) Assistant vice-presidents are entitled to a table, sofa, large desk, credenza and a potted plant.
6) Finally, executives of the senior circle have offices designed to reflect a certain corporate image to influential outsiders.

Pecking-order systems are further strengthened by profit-based salary administration packages that reward compliance with corporate structure. They focus on the number of people supervised, the size of the budget and the impact level of decision-making. The flat point system of ranking salary structures for professionals is one such system. Its use is falling out of favor with executive manage-

ment because it perpetuates the belief that pay is based on the position and not on performance.

Today, divisive organizations are no longer appropriate. A cooperative ethic has set the scene for a new kind of corporation. Internal data and information sharing gives the new corporation power over its competitors. Internal partnerships create value for a firm's stakeholders. The net result is improved quality, productivity and financial performance.

Another corporate phenomenon is the demarcation created by the geographical separation of divisions from centralized corporate staffs. Two corporate illnesses result:

• Headquarters vs. outposts. *Outposts:* "Those corporate types are only out to use us. They issue idiotic directives and find every opportunity to keep us in the dark and unrecognized by upper management." *Headquarters:* "We have to tell those clowns in the field over and over how to do things. All they care about is their private fief-dom of bringing in orders for things we don't sell or making things that won't sell. They constantly request funds that they don't need. They are chronic complainers about every little problem, especially when we try to assist them to meet our corporate objectives. In fact, they are downright nasty and resist any attempt at corporate assistance."

All of these corporate illnesses are treatable and curable. However, it takes a concerted effort on the part of the entire executive team.

Knowing your organization's culture can be a guide to help you

decide what is possible and what may be difficult to accomplish in your company. If your firm is divided into fiefdoms, information technology projects to be shared by the fiefdoms are likely to be expensive and less effective. If your firm is very hierarchical and heavily dependent on the point-based salary system, you have severe limitations on the return that investments in information technology can bring you.

The key is to understand your

culture and its limitations. The limitations should be removed through organizational restructuring and new reward systems.

If your development backlog has projects with expectations of correcting basic organizational and reward deficiencies, it would be better to shelve them until the organization is ready. •

Diff'rent strokes

Different organizational cultures have different ways of valuing information and the technology investment. Knowing what kind of culture your organization has is crucial to building an information-based organization. Each requires a different approach. In their book, *Corporate Cultures,* Terrence E. Deal of Harvard University and Allan E. Kennedy of McKinsey & Co. describe four basic kinds of corporate cultures:

• **Tough-Guy** cultures breed top managers who emulate the top Tough Guy, Macho or Tough Gal, Macha. Employees feel that they have exclusive ownership rights to their information. They believe it is a sign of weakness to share information with any other part of the organization. In fact, any request for information sharing will result in intense, defensive behavior. In this setting, corporate executives grab for the information resource and make it their exclusive property.

• The **Bet-Your-Company** environment fosters executives who are betting their company on a few key decisions with little or no feedback expected for years. Such a culture may be receptive to information sharing in general. But because of the specialized nature of its divisions, reaching a consensus on common terminology or data definitions may be difficult.

A good example is an oil exploration company. Decision-making focuses on doing it right the first time. Long deliberations follow. A mistake in oil exploration could result in a dry hole that costs $100 million to drill. In order to reduce the dry hole exposure, oil companies invest heavily in computer resources to perform geological evaluations.

In this environment, the chief information officer will experience a slow, methodological approach to doing business. The implementation of information management methodologies will also be laborious. If the internal cycle is six to eight years, the implementation time for information resource management must be estimated as the same six- to eight-year period.

• The **Process** (or bureaucratic) environment pays meticulous attention to detail and produces more information than any other culture. In fact, there is an outright information glut. It's difficult to understand why the information is being created in the first place, much less how to use it. For example, the government investment in information is huge, dwarfing the corresponding investment in automated information-handling systems.

• The **Work-Hard, Play-Hard** culture is the predominant culture in the high-technology industry. Emphasis is on growth. The sales organization drives the rest of the organization to provide products that will leave only the competition. The corporate heroes are those who produce results. Information exists in this environment, but it is dispersed, personalized and informal. The bulk of the information generated in this environment identifies sales prospects and assists in closing sales. Quota plans, competitive moves and sales results receive high attention.

Yet any attempt to centralize information leaves in this environment falls short of expectations. People are just too busy to provide the proper information for a centralized system. The folks at the central site are too busy getting out fires to install a quality, usable and effective information base.

The cultural pressure in this environment is to show short-term results. Long-range information management plans simply don't fit the corporate scheme of things. These plans involve too much expense in the current period; consequently, this culture keeps running hard and working hard by the seat of its pants.

DAVID R. VINCENT

How Unisys blended oil and water

In 1986, Burroughs Corp. acquired Sperry Corp. Wall Street observers saw the merger only a slight chance of success. To outsiders, the two cultures were very different.

Burroughs was clearly engaged in selling medium-range business and accounting systems. Its primary customer sources were financial institutions and small to medium-size businesses. It also sold high-technology systems to the military, but this was a secondary business. This business orientation enabled Burroughs' sales, finance and marketing executives to drive the corporation.

Sperry, on the other hand, built large systems for government and research customers. It was a technology-driven company managed by its research and development functions.

Considering that Burroughs acquired Sperry, combining the two cultures meant only one thing: the death of Sperry. To avoid this, W. Michael Blumenthal, chairman of Burroughs, decided on a different course of action.

Blumenthal declared that Burroughs was not *acquiring* Sperry; rather, it was to be a *merger* of equals. He decided that he would replace both the Burroughs and Sperry cultures with a new one. A systems engineer won a contest for naming the new, integrated company. He received $5,000 for his winning entry, Unisys.

Blumenthal then began to build the new culture. When asked whether he would use Burroughs or Sperry management, he replied, "Neither."

The new company, Unisys Corp., selected the Burroughs or Sperry person best qualified for the job. Management selected the best people for each opening, regardless of their past affiliation with either firm.

Alan Jones, staff vice-president of information systems and communications, led the effort to interconnect the various Burroughs and Sperry systems. Once this was accomplished, he received the task of building the new Unisys infrastructure.

Blumenthal mixed two cultures successfully

COMPUTERWORLD

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Pulling IS into the fold

A 10-step approach for incorporating info systems into your business

BY DAVID R. VINCENT

The information-based corporation can best be described as a corporation that behaves with the efficiency of 1,000 entrepreneurial units working together with the same organizing principle and driving force — and all dedicated to ensuring that each stakeholder benefits from the enterprise.

Information and technology planning cannot be performed apart from the basic business planning and execution process.

Completing the 10 necessary steps that let firms build such an organization will take at least one year and could take as many as three. The initial three steps should be accomplished within six months to a year, or the information and technology issue will die from lack of activity.

Step 1: Create and participate in the executive committee.

To build an information-based corporation, you — as the chief information officer or other senior information systems executive — need to start with the corporate imperatives and how they are created in your company. The vehicle is some form of an executive committee.

The executive committee process is critical both to your success and to that of the corporation. Your role as a participant in the executive committee is

pivotal — it can make or break you as an effective corporate leader.

If your company doesn't have a functioning executive committee, you may participate in creating one.

Chaired by the chief executive officer, the executive committee helps decide what possible future actions should be emphasized as corporate imperatives. From an internal point of view, establishing corporate imperatives and monitoring their implementation are the executive committee's most important roles. Through the imperative process, the executive committee assists the various business functions in making sure that their actions are aligned with the goals of the business.

Step 2: Determine key participants in the committee.

The functional executives responsible for information systems and telecommunications will be a key player in helping an organization make the transition toward building an information-based corporation. The human resources executive should also be an important participant, as will the strategic-planning or organization-development executive. The financial executive is another integral person who, like the IS executive, will work in both a centralized and dispersed environment.

The balance of the key players comes from the major line or-

ganizations, such as sales and marketing, manufacturing, distribution and operations.

These committee members are your principal partners for building an information-based corporation.

Step 3: Establish and participate in an information-resource council (IRC).

The IRC consists of essentially the same participants as the executive committee. Its focus is more specific, and it functions as a steering committee for making investments in information and technology supporting corporate imperatives and strategies.

This council meets less frequently than the executive committee. An IRC generally meets once a quarter; the executive committee meets once or twice a month. The participants in the IRC are the same executives that make up the executive committee. The IRC should be chaired by the company's CIO.

Step 4: Establish the information and technology needs and potential for demand-side stakeholders.

Information executives can now begin to do the homework necessary to play a leadership role in the IRC. By taking the initiative of examining stakeholder-based information and technology needs, information executives become partners with other corporate executives in improving corporate performance.

In assessing how your company can meet the demand-side information needs, you must look for the following:

• Strengths and unique relationships that are supported by information technology and specific information.

• Weaknesses resulting in poor stakeholder relationships.

• Opportunities based on cooperation rather than adversarial competition.

Step 5: Establish the information and technology needs potential for supply-side stakeholders.

Your relationships on the supply side are the partners who provide goods and services for the demand side.

Internal functions, such as purchasing, finance, manufacturing, etc., should manage those partnerships as opposed to establishing adversarial relationships.

Like the demand side, however, the supply side could greatly benefit from a team built of inter-

nal executives responsible for supply-side activity and key executives from supply-side companies. As in the case of the demand-side team, your company's executive committee and IRC can benefit greatly from this valuable source of intelligence on needs and possibilities.

Step 6: Establish the information and technology

By taking the initiative of examining stakeholder-based information and technology needs, information executives become partners with other corporate executives in improving corporate performance.

needs potential for investor stakeholders.

The information and technology needs of investor stakeholders and the company's internal functions involved with them are subject to yet other important stakeholders, the regulators. The Securities and Exchange Commission is key among these.

Other quasi-regulatory bodies, such as the Financial Accounting Standards Board and the American Institute of Certified Public Accounts, influence regulatory activity.

Thus, most of the information requirements in this step are focused on meeting regulatory and professional standards. Nevertheless, new sources of capital and opportunities for leveraged equity (e.g., greater dependence on borrowing) offer enormous potential to the investor.

Improved information in this area will tend to reduce risk. Therefore, improved information will tend to attract more and different investors. This same information will also enable the IRC to examine the cause and effect of information and technology investments.

Step 7: Establish the information and technology needs potential for internal stakeholders.

Perhaps the most sensitive

stakeholders are those internal to the company. For this reason, information about internal stakeholder relationships is sensitive.

Therefore, the internal functions that have access to and manage such sensitive information have a special power. Management, personnel executives, finance executives and the board of directors have status and privileges attached to their control over information about internal stakeholders.

For the information executive, this will be the most difficult area in which to participate as a partner. Key functional executives will need to be convinced that the IS executive has something to bring to the party.

Step 8: Establish the information and technology needs potential for the community and regulators.

By continually working together with both the community and regulators and with full disclosure of vital information by all, times of crisis are more manageable. When the company demonstrates its full commitment to the community and regulators through open disclosure and quick, appropriate reaction to emergencies, your organization's future is protected and may rise.

Step 9: Establish the information and technology needs potential for economic alliances.

This step involves synthesizing diverse demand-side, supply-side, investor and internal stakeholders into an overall economic model of alliances. By combining the strengths of allies in developing, producing and delivering products and services, the economic partners produce a formidable competitive model.

Step 10: Develop an information and technology plan that accomplishes the business objectives of the previous steps.

This investment strategy will make sense only if it is based on the previous steps. Unfortunately, many companies initiate this step as an independent technology effort. The results are teams or plans that have little to do with the business. ■

Hard numbers

These formulas can help estimate IS value added per employee

DP utility:	Revenue @ market − purchases
	6 employees
Telecommunications utility:	Revenue @ market − purchases
	6 employees
Information center:	Revenue @ market
	6 employees
Project management:	Revenue @ market (exclude computer $)
	6 employees
Consulting:	Revenue @ market
	6 employees

CPU units = 10M @ $0.10 each	= 1M
Storage units = 25M @ $0.15 each	= 3.8M
Output @ market value	= 4.8M
Less passthrough costs (equipment leases, etc.)	= 2.6M
DP value added	= 2.2M
Number of DP employees	= 20
Value added per DP employee	= 107.5

CPU units = 10M @ $0.06 each	= $600
Storage units = 25M @ $0.12 each	= 3M
Output @ market value	= 3.6M
Less passthrough costs	= 3.4M
DP value added	= 3.4M
Number of DP employees	= 20
Value added per DP employee	= $50

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COMPUTER INDUSTRY

Ignorance is — amiss

In a more increasingly governed by technology, those who govern have little or no technical education.

"A thousand floating points of light" may be an amusing turn of phrase when spouted by a politician charged with export regulation of supercomputers, but it is not so funny to realize that the humor could be merely a cover for the lack of knowledge of just what is meant by floating-point operations per second.

Last month, a subcommittee of the U.S. Department of Commerce charged with regulating supercomputer exports to friendly nations was shocked to find that its proposed rules would apply not only to mammoth Cray Research supercomputers, but also to IBM Personal Computers with a few extra boards, computers based on Intel Corp.'s next generation of processors and almost every mainframe currently being exported.

The department blames the oversized regulatory net on security agencies that are afraid some student — in some country designated "friendly" un-

Dell hath no fury when scorned

BY RICHARD PASTORE
CW STAFF

AUSTIN, Texas — Dell Computer Corp.'s mail-order method of distributing its personal computers is a double-edged sword. On one side, it is largely responsible for the firm's giddy success. On the other, it has carved a scornful — and tenacious — image in the minds of many potential buyers.

Through independent, Dell said it avoids the overhead of a field sales force and the markups of a dealer channel. It passes these savings on to customers, grabbing a lucrative chunk of the cost-conscious market from traditional PC vendors such as IBM and Compaq Computer Corp.

However, because of its distribution strategy, Dell is often perceived as little more than a dim, dusty warehouse that ships cheap, undistinguished PCs.

"We stay completely away from mail-order companies because of service and support concerns," said James Montgomery, vice-president of information systems at Reliance Insurance Co. in Philadelphia.

Such user fears have proved difficult to allay. "We've got a long way to go to convince people that this is a good way to buy products," admitted Michael Dell, founder and chief executive officer. "There are some accounts where we just cannot even get in the door. It's frustrating — but we've had our fair share of success."

Indeed, the firm has placed its products in 80% of the Fortune 100 sites: More than half of the Fortune 500 are now Dell users. Since

Michael Dell believes in the personal touch to bring in more business

the company began concentrating on the corporate market three years ago, its corporate business has grown from 15% of overall sales to 40%.

support from subcontractor Xerox Corp. Dell claimed to offer on-site support to users in 97% of the country's metropolitan areas. Last December, the firm began offering installation through Xerox as well.

Dell also built a glitzy demonstration center at its equally glitzy corporate headquarters. There, it can show just how Dell machines would fit into a potential corporate customer's specific computing structure. To make the point, Dell will bring in whatever it takes to approximate the customer's setup.

The firm's 24-year-old founder often plays a key role in the demonstration. "When we bring potential customers to Austin, they expect to see a warehouse. But then they talk to

Dell has worked hard for these gains. Three years ago, it began offering next-day, on-site

DG, Soviet firm form 'Perekat' partnership

BY MARYFRAN JOHNSON
CW STAFF

WESTBORO, Mass. — The Soviet and U.S. flags snapped side by side in the brisk March wind outside Data General Corp. headquarters last week as "Perekat" convened its first board meeting.

Named with the Russian word that means "river rapids," Pere-

kat is a joint business venture between DG, Soviet software firm NPO Parma and Austrian industrial firm Voest Alpine Industrieanlagen.

"We are the first American computer company to form a partnership with a Soviet high-tech company," said DG Chairman Edson de Castro.

The Perekat partnership is intended to bring that same roll-

ing pace of a rushing river to the computer and industrial automation of the USSR. Although the venture is still several months away from signing on its first customer — and possibly years away from turning a profit — DG officials stressed the long-term benefits of such an alliance.

DG Chief Executive Officer Ronald Skates said his company will be "well-positioned for success in the Soviet Union" as trade restrictions and licensing arrangements relax in the warming political atmosphere. "Other companies will be envious of us," Skates said.

As one of the Soviet Union's

leading producers of automated industrial systems and software, NPO Parma employs 2,500 people and produces more than 400 technical applications and specialized equipment for use in utilities, pulp and paper plants and other process industries. Voest Alpine, based business in the Soviet Union for 40 years, constructing approximately a dozen steel plants and other factories, collectively worth about $1 billion.

Voest Alpine Industrieanlagen is one of the largest industrial concerns in Europe and the parent company of Voest Al-

Savage

der Cocom — will despoil nuclear weapons on a U.S.-exported computer. It does not matter who wrote the proposal — its existence shows an utter lack of knowledge of the high-tech industry by those charged with governing it.

When it comes to technology trends, Congress has not a clue. Its members are not stupid — it is just that they tend to have low degrees, be over 40 and have overworked staffs. Having a law degree usually precludes having one in engineering, and lawyers are taught to think differently than technologists. Being older than 40 does not mean they are out of it,

but it does mean that they grew up pre-PC and pre-Nintendo, whereas a younger generation is steeped in computers. Their staffs tend to protect them from difficult technical information, even if they are aware of it.

Therefore, an enormous gap exists between the reality of the technical world we live in and that of the policymakers whose words become law.

Yes, some Australian student can probably design a weapon on a PC. What does that have to do with competition in a global marketplace where the computer industry in other countries does not have such restrictions?

Yes, the Federal Aviation Administration is spending billions of dollars for technology that is largely obsolete be-

fore it has a chance to help manage the nation's airways. This is due, in part, to a lack of technological sophistication on the part of Congress.

It is the fault of industry that it has not insinuated itself on a policy-making level. The only computer-related name associated with government during the Reagan administration was Hewlett-Packard Co. founder David Packard. Only recently have others — such as Tandem Computers, Inc. President James Treybig, who is on a national semiconductor advisory council — been involved with crafting national policy.

The "education president" should not confine his endeavors to schoolchildren; Congress and cabinet agencies are in need of some educating, too. Capitol

Hill staffs need to invest some time, find out what their bosses do not know and plan ahead to educate themselves and their policymakers before they lead the country into irreversible blunders.

IN BRIEF

Wait, there's more
First it was rumored, then it was promised and now it's about to be done: Wang Laboratories, Inc. last week announced the imminent sale of its Intecom, Inc. communications switching subsidiary to French telecommunications firm Matra Communication. The purchase price was not disclosed, however, according to Wang and Matra, the deal should see Intecom Chief Executive Officer Thomas Mayer remaining in place.

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Reason to believe
Mitch Kapor, founder of Lotus Development Corp. and, more recently, On Technology, Inc., and Richard C. Marcus, past president of the Neiman-Marcus retail chain, have invested in privately held, 3-year-old Xcellenet, Inc., an Atlanta-based developer of OS/2 software for managing networks and developing graphics-based applications. The amount and terms of the pair's investment were not disclosed.

• • • • • • • •

Triple play
Irvine, Calif.-based C. Itoh Electronics, Inc., a subsidiary of Tokyo-based C. Itoh & Co., has carved up its organization along printer lines. Each of three new companies will handle a most specific product groups: C-Tech Electronics, Inc., specializing in personal computers and office printers; CIE America, Inc., concentrating on heavy-duty business printers and Image Systems, Inc., marketing and distributing ion-deposition printers. Shogo Hotma, the newly appointed president of C. Itoh Electronics, will also serve as president of the three new companies.

• • • • • • • •

Looking East
Silicon Graphics, Inc. last week joined a growing list of Silicon Valley firms that have turned to Japan to raise capital. The company said it will sell a newly issued block of its stock to NKK Corp., Japan's second largest steel maker, for $35 million. NKK will also gain the right to distribute the Mountain View, Calif., firm's products in Japan. A spokesman for the $264 million company said it may eventually net as much as a 20% stake in the company to business partners in both Europe and Japan as part of a broad move to penetrate international markets.

Zenith, Bull butt heads on price

BY ELLIS BOOKER
and RICHARD PASTORE
CW STAFF

Groupe Bull and Zenith Electronics Corp. are embroiled in a $100 million dispute over the purchase price of Zenith Data Systems (ZDS), which Bull acquired at the end of last year.

Bull contends that because of weak fourth-quarter sales, ZDS is not worth the $496.4 million the French firm shelled out for it last December — a price based on net book value estimates made in November.

The current wrangle actually began on Feb. 16, when Bull's auditing firm, Deloitte & Touche, delivered a reduced net book estimate for the ZDS operation. Bull is seeking a refund of $49 million, plus interest.

Zenith, meanwhile, claims Bull is violating its purchase contract and owes it an additional $50 million, or a total of $550 million. The two firms have until mid-April to settle the dispute before a third accounting firm is

called in as an arbitrator to decide the final purchase price.

French-owned Bull had hoped to use Zenith's computer subsidiary as a vehicle into the U.S. microcomputer market. In 1989, microcomputers and workstations accounted for just 10% of Bull's $5.121 billion worldwide revenue. The ZDS acquisition boosted Bull's annual revenue to $6.7 billion.

However, ZDS recently lost two major contracts with the U.S. military, where it has been a leading supplier of personal computers. The lost contracts may have given rise to the purchase dispute, analysts said.

Zenith spokesman John Taylor refuted the suggestion that the lost government bids had anything to do with the purchase dispute. "This is an accounting issue over the net book value [of ZDS]," Taylor said. Zenith, he added, believes Bull's adjustments in the purchase price for ZDS were not made in accordance with its Zenith contract.

Last November, ZDS lost out

to Unisys Corp. on a bid to provide the Pentagon with $700 million in desktop computers and peripherals.

A second blow came on Jan. 31, when the General Services

ment Technology Services, Inc., a privately held reseller and systems integrator based in Chantilly, Va., Federal Computer Corp. in Falls Church, Va., and McLean, Va.-based SMS Data Products Group, Inc., all of which had made protests over the basis of the ZDS award.

Zenith and the Navy filed mo-

Not what they hoped for

After a week showing by Zenith in its fourth quarter, parent company Groupe Bull is wondering if it was worth the price

Source: Groupe Bull
CW Chart: Doreen Dolce
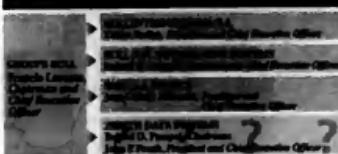
Administration (GSA) revoked a $534 million award to ZDS to supply computers to the U.S. Navy. Judge Joseph A. Vergilio of the GSA's Board of Contract Appeals found in favor of Gov-

tions to reconsider Vergilio's ruling and are awaiting a hearing on the matter next week.

The loss of the government contracts put ZDS, now Bull-owned, out in the cold vs. domes-

tic computer vendors, according to Julian Menear, senior vice-president at Young Capital Group in Chicago.

"When was the last time," Menear asked, "that Compaq, IBM or Apple did not win a procurement government contract and Mitsubishi won?" Not only is Bull a foreign firm, it is closely tied to a foreign government. In 1982, the French state became Bull's major shareholder, and it now owns over 90% of the outstanding shares of Compagnie des Machines Bull, the holding company for all the Bull units.

"We have a difference of opinion of significant magnitude," Zenith Chairman and President Jerry Pearlman said of the Bull purchase price dispute. "We intend to pursue vigorously our view of the correct purchase price and what is owed us."

Zenith had also predicted a $22 million fourth-quarter profit for its computer operations. But the firm now estimates that sour sales may result in a net loss for the period. Fourth-quarter figures cannot be reported for the discontinued operations until Zenith's audit is complete, a company official said.

Dell

Michael, and we show them what we're all about," said Joel Kocher, vice-president of sales and marketing.

This in-person touch may be just the ticket on occasion, but a mail-order company is only as good as its telemarketing — a

lesson not forgotten at Dell. The firm said it stresses continuity in its telephone force. Each time a customer calls in, he is usually routed to the same sales and support representatives. Dell claimed to handle 6,000 calls per day, 80% to 90% of which are answered without holding.

Users contacted by Computerworld seemed appreciative. "Their over-the-phone service is a lot better than most," said Stuart Denrich, vice-president of data processing at Valu Food, Inc. in Baltimore. "I can't remember a time when I've called them and they had to call me back later; they really know the equipment."

Still, some users refuse to pick up their phones in spite of Dell's attractive prices. "Price is a consideration, but it's not enough to make us change our preference for doing business face to face," Montgomery said.

Despite its overall growth and increased corporate business, Dell hasn't escaped the recent traumas that have scarred the PC industry. In the firm's most recently reported quarter ended October 1989, profit was down 98% from the previous year's corresponding quarter.

Product delays, a large inventory of high-priced dynamic random-access memory chips and the industrywide PC sales slump all took their toll, according to Michael Dell and several analysts. In addition, a buildup in research and development has sapped resources and bruised the bottom line, observers said.

Because of heavy investing, "They haven't shown a lot of bottom-line momentum," said

Eric Zimits, an analyst at Rauscher Pierce Refsnes, Inc. in Dallas. Zimits predicted Dell's fiscal 1990 profit will be down 67% from last year. The firm will announce its 1990 earnings later this month.

Analysts predict Dell has imposed cost-control measures in all areas. "You name it, we're reduc-

ing it," Michael Dell said. Though there have been no layoffs, hiring has been limited to "only absolutely critical hiring requirements."

Problems notwithstanding, few are counting the company out. "Profit margins will improve nicely from '89 levels, but the extent depends on how well

their new products are received," said Michael Davin, an analyst at Lovett Underwood Neuhaus & Webb in Houston.

"There is a lot of earnings power in this company if they can manage their costs more effectively," Zimits added. He said he expects profit to rebound to $10 million in fiscal 1991.

Fiscal '85 '86 '87 '88 '89 '90* '91*
*Projected

Net profit
(in millions)

Fiscal '85 '86 '87 '88 '89 '90 '91

Net revenue
(in millions)

Source: Kneafler
CW Chart: Doreen Dolce
Pierce Refsnes

The Fountain of Youth?

BY CAROL HILDEBRAND
CW STAFF

Many a start-up loses some of its youthful vigor and flexibility on the way to becoming a mature company. Dell Computer Corp., however, seems to have found the Fountain of Youth.

The rapidly expanding microcomputer maker has made some concessions to the fact that it is now a $380 million firm with 1,800 employees — for instance, it now conducts performance reviews and issues an employee newsletter. But the spirit of a firm with roots in a dorm room at the University of Texas is still strong, according to industry observers, and this sets Dell apart from the many that have not been successful in fighting off creeping business staidness.

It is hard to ignore the enthusiasm at Dell. Production-line employees at the manufacturing facility have organized a product quality competition. Tab-ten banners and slogans plaster the walls of the sales/support area. Leann and Lone Star flags abound on desktops.

This local pride helps foster the company's spirit, said Richard Shaffer, president of Technologic Partners in New York. "Austin's a nice place to be. Texans have a very pervasive work ethic, so the people are willing to work harder, especially considering the local economic climate. It also helps not to be in Silicon Valley — you don't catch Ferrari fever," he said.

Michael Dell, the firm's 24-year-old founder and chief executive officer, largely credits the

firm's practice of creating small autonomous groups within the company and then giving them a set of clearly defined missions and goals.

Nebulous, long-distance goals tend to create baffled, uninspired employees, Dell said. In contrast, the entrepreneurial units into which his firm is divided "do have goals that tie into company-wide goals, but what that means for them is something very specific. It's something they can get very excited about on a day-to-day basis and then go achieve," Dell said. For example, the firm has given its portable systems group a lot of freedom to develop a family of products that will establish them more securely in the portable arena, a fairly new niche for Dell.

Dell's propensity for decisions made on the run also helps keep his company away from the arthritis-strongly Exocebrs. "I'm not a very patient person," Dell said. "Studios and the analytical process drive me crazy."

The CEO's passion for action does have a downside, said Stan Seitz, former director of manufacturing programs at Dell. He said that Michael Dell needs to learn to listen to his people when making business decisions. "He's still extremely young," Seitz said. "He's very intelligent, but he hasn't any of the battle scars" that might keep him from making rash decisions.

For Dell, however, hanging on to that flexibility is an important fight as his firm continues to grow. "There needs to be coordination, but you don't want [it] at the expense of excellence in whatever you are trying to do," he said.
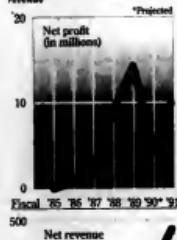
There's a world of distance between our

Only AT&T Paradyne can provide extension of your mainframes' multiplexer channel to anywhere in the world with virtually no loss in performance. With AT&T Paradyne's PIXNET-XL channel extension products, you can access your mainframe across the ocean as fast as across the room. Which makes PIXNET-XL ideal for applications like host-to-host communications, data center consolidation, disaster recovery and remote check processing.

PIXNET-XL is also easy on your budget. Besides eliminating the need for a remote CPU, we can cut down your monthly line costs. PIXNET-XL doesn't require any increase in bandwidth no matter how far the distance. And since we have the flexibility to work with your existing hardware and software, getting

channel extenders and everyone else's.

Perekat

pine Vertrebe, a marketing group with offices in Moscow and the Soviet city of Perm, near the Ural Mountains. NPO Parma is also located in Perm, where the Perekat venture has opened a separate office staffed with about 20 programmers.

With an MV2000 minicomputer provided by DG, the Soviet programmers have already ported some computer-aided design software from a Soviet computer line to the MV. The rest of the applications should be ported by the end of the year, when DG hopes to have cleared export licensing hurdles and procured Parma with a more powerful MV7800 machine.

The 7000 series has already had two successors, the MV15000 and the MV18000, but those machines are too powerful to obtain export licenses, company officials said.

DG personnel in West Germany and Paris will help the Soviet programmers finish porting all the Parma applications.

> "**O**UR INDUSTRY is undergoing its own *perestroika* and wants to be competitive on the world market."
>
> NIKOLAY ARTIMOV
> NPO PARMA DIRECTOR

Eventually, Parma will act as a value-added reseller of Soviet-designed software packaged on DG hardware. Perekat will market the products developed in the joint venture and Voest Alpine will provide engineering, construction and marketing expertise.

"Our industry is undergoing its own *perestroika* and wants to be competitive on the world market," said NPO Parma Director Nikolay Artimov, speaking through an interpreter.

He described a Soviet society now enmeshed in a major push toward computerization and automation of its industries, businesses and government functions. The Soviet ER series of computers is comparable in performance to Digital Equipment Corp.'s old PDP line of minicomputers, which were replaced more than a decade ago by the VAX architecture.

Artimov said computer hardware manufactured in his country is often unreliable and difficult to repair.

Many Soviet computers are "knock-offs" or look-alikes fashioned after IBM's 360 and 370 architecture, DG spokesman Stroup noted. A substantial number of DEC PDPs, VAXes and other cloned machines are in the USSR as well, used for scientific and technical applications.

IBM mainframes generally handle business at the top governmental levels, Artimov said.

Stroup said there are also a fair number of DG machines — Novas and MVs — in the USSR.

Most U.S. computer firms, DG included, have been hit with fines and penalties by the international committee governing high-tech sales for poor tracking of hardware that ended up in communist countries, Stroup explained.

COMPUTER CAREERS

Information for your advantage

Career moves require an inside view of firms, people in them and yourself

BY CAMERON CAREY
SPECIAL TO CW

Choosing a spouse or a career than ending a career move. For one thing, choosing a spouse rests in part on a flutter of the heart. There are also many potential candidates.

A career step, on the other hand, often involves a smaller range of prospects. It also calls for self-analysis, a wealth of detailed information on specific opportunities and plenty of proof.

There are similarities between the two decisions, however. Both involve choice, commitment and risk; both require identification of prospects who are likely to "buy"; and both call for accurate timing.

The first problem most people encounter when making a career move is the difficulty of making choices. Some folks don't know what they want from their career. Life is easier that way; there's less thinking to do.

Other people develop some notion of what they want to accomplish. The more they do so, the better. Specific interests generate focus and almost automatically bring to mind the tactical steps necessary to attain those goals, which, when taken seriously, become commitments.

The difficulty here rests with the risk you must assume. By making choices, you lay things on the line. It becomes possible to move toward goals, but it's also necessary to cut away alternative courses of action. People wonder if they've done the right thing. Success, however, requires both choice and commitment, and it therefore calls for accepting this risk, for better or worse.

The next step is identifying just what to pursue. Where are the organizations, and the managers within them, that will meet your special package of abilities and capabilities?

I suggest the focused, rifleshot approach because it costs less and yields faster results. However, it also takes more thought and planning up front, so some people favor the shotgun approach instead of the rifleshot. With the shotgun approach, they send off 400 letters and resumes and wait two to three weeks to get a 1% response, usually in a negative vein. At $1 per letter, that costs $400 dollars, a good bit of time and, most likely, a good deal of your positive attitude.

Talk with friends and other contacts and do research at the library to identify organizations that are serious about your field. With these names in hand you can find out if the problems these organizations are facing are ones you want to work on.

In conducting this search, it's important to watch out for ominous developments at the industry, organizational, departmental and individual levels.

Most industries, for instance, have enjoyed years of economic growth, yet many of them have been plagued by layoffs. Mergers, acquisitions, a stock market crash and corporate failures take their toll on careers. What are the signs of trouble? Mature industries, for one — firms in them are often the cash cows that make good takeover targets.

At the organizational level, mature companies find expansion difficult, which in turn reduces opportunities for promotion and interesting new assignments. There are a lot of middle managers competing for a few top spots.

To avoid these dangers, look for a situation that is growth-oriented and includes the financial and human resources to capitalize on opportunities.

Support at the organizational level is critical. To the extent possible, find out who is behind the work you want to get involved with. Does the person in charge have the clout and resources to make it go? Is there broad-based backing? Or will the effort consist of lip service? If so, there will not be sufficient resources, and your frustration will run high because you won't be

one that's largely out of your control. The smartest action you can take is to open your window of opportunity as wide as possible. Some people never consider other positions. Some only consider them when their present duties are finished. Others will always be receptive to opportu-

> ## THE DIFFICULTY HERE rests with the risk you must assume. By making choices, you lay things on the line. It becomes possible to move toward goals, but it's necessary to cut away alternative courses of action.

able to accomplish the goals your performance will be measured against.

Look out for dangers at the departmental level, too. The greatest danger is a new boss. He may introduce new ideas about how the work you'd be doing relates to the bottom line, how you should behave, how priorities are set and how much autonomy you will have.

Whatever direction you pursue, you should seek a situation that promises success and satisfaction by deciding what is important to you and looking for people who value the same things. One approach is to look for individuals who are like you professionally — birds of a feather who speak your lingo, share your sense of humor and appreciate your efforts and creativity.

Finally, timing is a critical element — but, like the weather, nities. This approach creates the widest opening.

Having the right information can widen the opening, too. Typically, one hears about a position knowing it will be filled within three weeks or so. If you knew a job description was under development, the opening might expand for you by two months. If you knew when senior management agreed that someone had to be hired, it would widen the opening even farther.

If your work situation begins to feel tense, it may be time to start looking for another one, whether inside or outside of your present organization. But if your current work is exhilarating, stay where you are. Enjoy it while it lasts.

Carey is president of Computer Security & Placement Service, Inc. in Northboro, Mass.

CAREER INDEX

Computer recruitment advertising index*

MARKETPLACE

IBM's move to open systems

The RS/6000 strategy hints at support for Unix, OSI and more

BY BRIAN JEFFERY
SPECIAL TO CW

With everyone viewing IBM's Unix-based RISC System/6000s as a line of technical workstations, a lot of what the company said in introducing the reduced instruction-set computing machines last month didn't get the attention it deserved.

Together, IBM's statements show that its center of gravity is shifting away from proprietary architectures and defensive postures and toward a wide-ranging strategy of co-existence and competitiveness with Unix, Open Systems Interconnection (OSI) and open systems in general.

Although IBM didn't advertise the fact, nearly 40% of the applications announced for the RS/6000s are for vertical industry markets, and more than 90% of the remarketers participating in the launch will sell to vertical industries.

In addition, IBM made the rather startling announcement that large chunks of the open systems world would be supported across its proprietary Systems Application Architecture

(SAA), as well as AIX, its version of Unix.

The chunks include the X Window System, the Open Software Foundation's Motif, Ethernet, Sun Microsystems, Inc.'s Network File System, Transmission Control Protocol/Internet Protocol and OSI.

Languages and relational database architectures will also be standardized across the two platforms.

As if that move were not enough, IBM frankly admitted that in areas such as network management, office systems and distributed computing, there is going to be a much stronger emphasis on OSI-based design parameters in the future.

Some of the implications of what IBM is doing with AIX also got lost in the rush to count the millions of instructions per second and floating-point operations per second of the RS/6000 line. IBM said AIX 3.0 will be implemented on new Personal System/2s based on Intel Corp.'s 80486 microprocessor. Meanwhile, AIX/370 will become more powerful and run on "Summits," 4391s and 9370s.

The move toward open systems doesn't mean IBM is giving up on Systems Network Architecture (SNA), SAA and all the

rest. Far from it: IBM's proprietary products and architectures are still expected to account for the bulk of its business through the 1990s. However, IBM's sales of new products to new customers for new applications will increasingly revolve around AIX.

The replacements

That outlook reflects a broader development within the computer industry. In recent years, it has become clear that much of the industry has become a replacement business. Close to 100% of mainframe sales are replacements. More than 85% of U.S. minicomputer sales are replacements and upgrades. The vast majority of the software industry for large and midrange systems serves an installed customer base whose growth is incremental at best. Even in the personal-computer world, OS/2 systems are now replacing first-generation machines.

Except for PCs — for now — the most striking aspect of the computer industry today is that virtually all Unix growth is in new applications, and the majority of growth in new applications is in Unix systems.

This arena includes the fast-growing workstation market as

well as high-end minisupercomputers and the like. It is clear that today's workstations will, during the next five years, reach well up into the supercomputer bracket.

There is also the market for multiuser Unix microcomputers among small and medium-size businesses. It is a market that is sometimes neglected but that vendors say accounts for more sales of Unix business applications than Fortune 500 corporations. That development should not surprise us: In all major economies, small business is growing faster than large corporations.

Another factor is the coming growth in Europe and the Pacific Rim, which are already outpacing a stagnant U.S. computer market. The countries there will move toward Unix, OSI and Open faster and further than the U.S.

As a conservative estimate, more than 70% of the new applications growth in the U.S. during the next five years will be in Unix-based systems, and the proportion worldwide will probably be even higher.

That simple proposition explains IBM's actions. Current IBM users may want to stay with what they have and with SAA and the upgrades and replacements that IBM will supply. For organizations requiring new systems and applications, however, IBM has introduced a new set of options. These options apply whether applications are for sci-

entific and engineering work or for the industrial arena. They are relevant for distributed computing, file servers, image-processing and a range of other requirements, including transaction processing (yes, AIX does that, too).

It is a whole new IBM marketplace — smaller than the mainstream one, but growing faster. There may be some wild cards, too: At the RS/6000 launch in Tokyo, a senior executive of IBM Japan startled everyone by projecting that in the second half of the 1990s, at least half of IBM Japan's business would be in AIX systems. If Japan goes that way, so might Europe. Would the U.S. then resist the trend? We live, after all, in a world in which the last 12 months have taught us to take nothing for granted.

Jeffery is managing director of International Technology Group in Los Altos, Calif.

TRAINING

Making end users certifiable

Certification programs can enhance training, but watch for the pitfalls

BY NAOMI KARTEN
SPECIAL TO CW

Training doesn't get any respect. To some managers, it is time that employees could better spend doing the work they were hired to do. To other managers, it's a convenient way to reward employees for a job well done.

A certification program for training of computer users can't magically change these attitudes, but it can offer some benefits to employees, managers and the training organization. Such a program isn't snap to establish, however, and can fizzle or backfire if implemented improperly.

A training certification program is a formal system through which employees earn credits for successful completion of courses in a curriculum. Course credits become part of the individual's employment record and can be taken into account in decisions regarding transfers, promotions and job performance.

What are the advantages of adopting such a program? It gives training greater credibility. With a certification program, end-user training is no longer about only spreadsheets and databases but skill acquisition and career development as well. The program can thus improve the way training is viewed by employees — including all levels of management.

The program is a motivator. Course credits encourage employees to take part in training. Knowing they must do well to qualify for credits, they are more likely to take the training seriously and thus retain what they've learned.

Credits can be offered not only for courses but also for activities such as presentations. This step provides employees with the incentive to make contributions that can help them and the organization.

The program tracks employee progress. As a result, the employee, the manager and the human resources department can obtain information about the status of the employee's computer education.

Certification provides an objective gauge of an employee's competence. Computer skills are an increasingly important prerequisite for many positions. However, mere completion of a course doesn't mean employees understand material and can apply it. Nor are employees' declarations of expertise worth much. Every manager has seen resumes liberally sprinkled with lists of hardware and software skills, but how can the manager judge the true level of competence? Certification provides an objective standard.

Certification also provides trainers with clout. Many trainers lack the authority to reject employees who attend classes without a clear reason, such as the ones sent on the whim of a manager who views training as a perk. A certification program can give trainers the authority to require that employees satisfy certain prerequisites.

What about the potential pitfalls of certification?

Implementing and managing a program is a major effort. It requires a significant amount of time to analyze current course offerings, plan a curriculum, establish certification guidelines, develop administrative procedures and coordinate with the human resources department. Countless details must be considered, such as how to handle no-shows and what to do about employees who don't complete a course successfully.

Determining how many credits a course is worth is a subjective process. Does a four-credit course contribute twice as much to an employee's performance as a two-credit course? Assigning credits to courses can become an arbitrary process that has more to do with the trainer's attitude toward the course than the complexity of the material or its applicability on the job.

Successful completion of a course must be assessed by some form of test. Most end-user training does not include testing, and most trainers are not experienced at developing statistically valid tests. A proliferation of certification programs could result in an increase of superficial tests.

Standardized tests developed by specialists would be an important step in the right direction, but developing them would be complicated because few companies present courses that cover precisely the same material.

Certification doesn't measure whether course material is applied on the job or, if it is, whether it is applied correctly. In assessing the true value of a course, it is therefore as limited as the efforts most companies already make. The only way to assess the value of training on the job is to do some type of follow-up review. Unless a certification program is designed to incorporate follow-up, it solves only part of the training problem.

Finally, certification can motivate employees to take one course after another just to rack up credits that will prepare them for another position. The ability to do so may be a plus for the employee, but not for management.

Training certification programs aren't without pitfalls, but the experiences of companies that have tried them suggest that they can be effective in making training count.

Karten is president of Karten Associates in Randolph, Mass., and editor of the monthly newsletter "Managing End-User Computing."

STOCK TRADING INDEX

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140
120
110
100
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80
70
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S&P 500 stock index
CW stock index
9/13
3/7

Indexes	*Last Week*	*This Week*
Communications	116.1	119.3
Computer Systems	76.8	78.9
Software & DP Services	115.5	120.6
Semiconductors	55.0	57.2
Peripherals & Subsystems	78.0	79.6
Leasing Companies	96.3	90.4
Composite Index	83.7	85.0
S&P 500 Index	140.1	142.2

Communications

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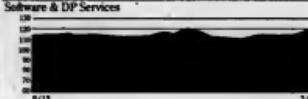
Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, MARCH 7, 1990

Communications and Network Services

EXCH		PRICE 52-WEEK RANGE		CLOSE MARCH 7 1990	WEEK NET CHNGE	WEEK PCT CHNGE
N	AMERICAN INFO TECHS CORP	66	50	59.875	2.1	3.7
Q	ANDREW CORP	26	15	21.75	-0.3	-1.1
Q	ARTEL COMM CORP	4	3	7.5	0.0	0.0
N	AT&T	47	30	41	1.3	3.1
Q	AVANTEK INC	7	2	3.063	0.6	22.5
N	AYDIN CORP	21	14	15.5	0.8	5.1
N	BELL ATLANTIC CORP	114	74	92.75	2.3	3.2
N	BELLSOUTH CORP	65	40	53.375	1.0	1.9
Q	COMPRESSION LABS INC	14	4	12.875	0.3	7.3
Q	CONTEL CORP	37	24	25	1.4	5.0
Q	DATA SWITCH CORP	5	2	2	0.1	3.2
Q	DIGITAL COMM ASSOC	25	17	20.25	1.3	6.8
Q	DYNATECH CORP	21	16	15.5	-0.3	-1.6
Q	FIBRONICS INTNL INC	7	4	6.625	0.3	15.2
Q	GANDALF TECHNOLOGIES	7	3	2.75	-0.3	-10.2
N	GENERAL DATACOMM INDS	7	4	4	-0.1	-3.0
N	GTE CORP	72	65	61.875	0.8	1.4
Q	INFOTRON SYS CORP	13	5	6.8	-0.5	-7.1
N	ITT CORP	65	51	54	-0.8	-1.5
N	M A COM INC	5	4	4.25	-0.3	-5.5
Q	MCI COMMUNICATIONS CORP	65	28	33.125	-1.3	-3.6
N	NETWORK EQUIP TECH INC	32	16	30.375	1.3	4.3
Q	NETWORK SYS CORP	12	7	11.8	0.3	7.0
N	NORTHERN TELECOM LTD	25	14	25.125	0.9	3.5
Q	NOVELL INC	39	24	37.75	1.5	4.1
N	NYNEX CORP	92	66	80.5	0.3	0.3
N	PACIFIC TELESIS GROUP	52	34	44.25	0.1	0.3
A	PENRIL CORP	5	4	6.8	0.1	2.0
N	SCIENTIFIC ATLANTA INC	25	14	23.125	2.0	6.5
N	SOUTHWESTERN BELL CORP	65	44	57	2.3	4.1
Q	3 COM CORP	29	10	13.9	1.4	11.3
N	US WEST INC	61	60	70.125	1.3	1.8

Computer Systems

EXCH		PRICE 52-WEEK RANGE		CLOSE MARCH 7 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ALLIANT COMPUTER SYS	6	3	7.875	1.1	16.7
Q	ALPHA MICROSYSTEMS	5	4	3.75	-0.1	-3.2
Q	ALTOS COMPUTER SYS	5	5	5.375	0.1	2.4
A	AMDAHL CORP	23	11	18.125	1.1	8.0
Q	APPLE COMPUTER INC	50	32	36.375	1.4	4.0
N	BOLT BERANEK & NEWMAN	16	5	8.125	0.1	2.1
N	COMPAQ COMPUTER CORP	113	66	92.25	8.0	8.5
N	COMMODORE INTNL	20	7	8.875	0.3	7.6
N	CONTROL DATA CORP	34	16	18.75	1.3	7.1
N	CRAY RESH INC	51	51	66.625	2.1	4.5
Q	DAISY SYS CORP	5	5	0.521	0.0	6.2
N	DATA GEN CORP	16	5	8.875	0.1	1.4
N	DATAPOINT CORP	5	2	2	-0.1	-5.9
Q	DELL COMPUTER CORP	5	5	6.125	-0.1	-2.0
N	DIGITAL EQUIP CORP	114	70	74.5	-3.5	-4.8
N	FLOATING POINT SYS INC	4	1	1.8	0.0	0.0
N	HARRIS CORP	40	27	30.125	1.1	3.9
N	HEWLETT PACKARD CO	58	40	43.625	0.5	1.2
N	HONEYWELL INC	92	92	85	2.3	3.0
N	IBM	121	93	105.5	1.5	1.8
Q	INFORMATION INTL INC	16	12	12.25	0.3	2.1
Q	IPL SYS INC	5	5	5	0.5	8.5
N	MAI BASIC FOUR INC	5	2	2.875	0.0	0.0
N	MATSUSHITA ELEC INDL LTD	186	136	137.8	-6.8	-4.7
Q	MENTOR GRAPHICS CORP	22	14	16.25	1.5	9.8
N	NBI INC	5	0	0.313	0.0	-9.0
N	NCR CORP	72	53	70.375	1.9	2.4
Q	PYRAMID TECHNOLOGY	26	5	27.5	1.5	6.8
Q	SEQUENT COMP SYS INC	23	10	22.25	1.0	4.7
Q	SHAREBASE CORP	5	5	0.8	0.0	0.0
Q	SUN MICROSYSTEM INC	24	13	23.25	0.8	3.9
Q	SYMBOLICS INC	3	1	0.875	-0.1	-6.7
N	TANDEM COMPUTERS INC	28	15	28	0.3	1.8
N	TANDY CORP	65	32	31.875	0.0	0.0
N	ULTIMATE CORP	12	5	8.125	0.1	2.1
N	UNISYS CORP	29	12	15	0.9	6.2
A	WANG LABS INC	10	4	6	1.1	23.1

Software & DP Services

EXCH		PRICE 52-WEEK RANGE		CLOSE MARCH 7 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	AMERICAN MGMT SYS INC	15	11	12.875	0.8	6.2
Q	AMERICAN SOFTWARE INC	23	13	19.625	1.0	5.4
N	ANACOMP INC	5	5	3.375	-0.1	-3.6
Q	ANALYSTS INTL CORP	20	12	16.5	0.0	0.0
Q	ASHTON TATE	24	5	13.375	1.5	12.3
Q	ASK COMPUTER SYS INC	17	7	6.5	0.3	5.6
N	AUTO DATA PROCESSING	54	38	53.25	3.0	6.0
Q	AUTODESK INC	66	27	47	2.3	6.2
Q	BMC SOFTWARE INC	23	15	32.25	1.5	4.9
N	BUSINESSLAND INC	14	7	10.75	1.6	17.8
Q	COGNOS INC	5	4	4.5	0.0	0.0
N	COMPUTER ASSOC INTL INC	22	11	13	1.0	8.3
Q	COMPUTER HORIZONS CORP	11	7	6.75	-0.3	-2.8
N	COMPUTER SCIENCES CORP	66	44	45.125	0.3	1.1
N	COMPUTER TASK GROUP INC	16	6	10.25	0.3	7.8
Q	COMSHARE INC	42	20	38.5	2.3	7.3
Q	CORPORATE SOFTWARE	16	5	10.75	0.3	2.4
N	GENERAL MTRS (CLS E)	66	43	56	2.5	5.4
Q	HOGAN SYS INC	7	4	4	0.1	1.8
Q	INFORMIX CORP	17	5	14.75	2.1	16.8
Q	INTELLICORP INC	7	3	5.75	0.6	15.0
Q	LEGENT CORP	32	21	27.75	0.6	2.3
Q	LOTUS DEV CORP	34	15	32.75	1.9	5.6
Q	MICROSOFT CORP	106	66	102.75	4.0	4.1
Q	NATIONAL DATA CORP	39	25	28.75	0.6	2.7
N	ON LINE SOFTWARE INTL INC	11	5	6	-0.3	-3.0
Q	ORACLE SYS CORP	28	11	23.875	1.8	6.7
N	PANSOPHIC SYS INC	15	12	16.375	-0.1	-0.8
Q	PHOENIX TECHNOLOGIES INC	15	5	3.25	0.0	0.0
Q	POLICY MGMT SYS CORP	38	22	34.5	1.0	3.0
Q	PROGRAMMING & SYS INC	22	16	17	-0.8	-3.6
Q	RELATIONAL TECH INC	15	5	8.375	0.3	6.8
N	REYNOLDS & REYNOLDS CO	34	15	20.875	1.1	5.7
Q	SAGE SOFTWARE INC	12	7	11.375	0.1	1.1
Q	SEI CORP	20	15	16.25	0.3	1.8
Q	SHARED MED SYS CORP	16	12	13.375	-0.4	-2.7
Q	SOFTWARE PUBG CORP	21	10	20.25	2.3	12.3
A	STERLING SOFTWARE INC	15	5	6.75	1.1	13.0
Q	SUNGARD DATA SYS INC	28	15	20	-0.8	-3.6
Q	SYSTEMATICS INC	41	30	38.5	6.8	29.4
N	SYSTEM CENTER INC	28	18	21.375	-0.5	-3.6
N	SYS. SOFT INC	28	12	25.25	2.3	9.8
Q	WORDSTAR	5	1	0.75	0.0	0.0

Semiconductors

EXCH		PRICE 52-WEEK RANGE		CLOSE MARCH 7 1990	WEEK NET CHNGE	WEEK PCT CHNGE
N	ADV MICRO DEVICES INC	11	7	5	0.3	6.1
N	ANALOG DEVICES INC	12	7	8.375	0.3	3.1
Q	ANALOGIC CORP	11	6	9.625	-0.3	-2.5
Q	CHIPS & TECHNOLOGIES INC	28	14	23	1.8	7.0
Q	INTEL CORP	42	23	40	-0.3	-0.8
Q	MICRON TECHNOLOGY INC	28	7	12.625	0.5	4.1
N	MOTOROLA INC	64	40	62.25	0.8	0.8
N	NATL SEMICONDUCTOR	5	4	7.5	0.5	7.1
N	TEXAS INSTRS INC	47	28	38	0.3	2.1
A	WESTERN DIGITAL CORP	15	5	10.75	1.3	13.2

Peripherals

EXCH		PRICE 52-WEEK RANGE		CLOSE MARCH 7 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	ALLOY COMP	3	1	1.75	0.3	24.4
N	AM INTL INC	5	3	3.5	-0.3	-6.7
Q	AST RESH INC	15	7	15.125	-0.8	-4.7
Q	AUTO TROL TECH CORP	5	2	2.75	-0.5	-16.8
Q	BANCTEC INC	20	11	18.25	-0.3	-1.4
Q	CIPHER DATA PRODS INC	10	4	7.5	0.1	1.7
A	COGNITRONICS CORP	5	5	6.25	1.4	28.2
Q	CONNOR PERIPHERALS	16	7	17.25	1.1	7.0
A	DATAPRODUCTS CORP	15	5	4.875	-1.0	-17.0
A	DATARAM CORP	13	5	12	0.1	1.1
N	EASTMAN KODAK CO	52	37	39.875	2.3	6.0
N	E M C CORP MASS	7	3	6.125	0.3	16.7
Q	EMULEX CORP	12	5	5.875	0.6	11.9
Q	EVANS & SUTHERLAND	28	17	27.125	2.1	6.5
Q	ICOT CORP	5	1	1.625	0.1	8.3
Q	INTERLEAF INC	10	5	8.75	1.0	17.4
Q	IOMEGA CORP	4	2	3.938	0.0	0.0
Q	LEE DATA CORP	4	1	1.563	0.1	4.2
Q	MASSTOR SYS CORP	4	1	1.438	-0.3	-17.8
Q	MAXTOR CORP	12	7	11.5	0.8	7.0
Q	MICROPOLIS CORP	6	5	5.625	0.3	4.7
N	MINNESOTA MNG & MFG CO	84	66	81.25	1.1	1.4
Q	PERSONAL COMP PRODUCTS INC	5	4	4.125	0.0	0.0
Q	PRINTRONIX INC	11	7	11	0.3	2.3
N	QMS INC	15	7	15	1.1	6.1
Q	QUANTUM CORP	17	5	13	1.5	13.0
N	RECOGNITION EQUIP INC	15	5	6.8	0.1	2.0
Q	REXON INC	8	5	5	0.6	6.7
Q	SEAGATE TECHNOLOGY	20	5	18.625	0.1	0.7
N	STORAGE TECH CORP	23	5	18.75	2.0	11.3
Q	TANDON CORP	2	0	1.438	0.0	0.0
N	TEKTRONIX INC	24	13	13.125	-0.3	-1.8
Q	TELEVIDEO SYS INC	1	0	0.215	-0.1	-30.0
N	XEROX CORP	66	50	53.75	2.3	4.4

Leasing Companies

EXCH		PRICE 52-WEEK RANGE		CLOSE MARCH 7 1990	WEEK NET CHNGE	WEEK PCT CHNGE
Q	AMPLICON INC	115	6	6.625	-0.6	-8.0
N	CAPITAL ASSOC INTNL INC	5	5	5	-0.3	-7.7
N	COMDISCO INC	34	21	25	1.3	5.8
Q	CONTINENTAL INFO SYS	2	0	0.281	-0.1	-30.8
Q	LDI CORPORATION	16	13	14.25	0.0	0.0
Q	PHOENIX AMERN INC	5	5	3.5	-0.1	-3.4
Q	SELECTERM INC	6	6	5.75	0.0	0.0

EXCH: N—NEW YORK; A—AMERICAN; Q—NATIONAL

Peace treats

Cease-fire on high-tech front results in big parade of profit

Lay down your arms, and investors will lay down their cash. Just ask Compaq Computer Corp., whose stock flew like a shot last week, rising 11⅜ points to 95⅜, as the company settled a year-long squabble with retailer Businessland, Inc.

A cease-fire agreement also did wonders for Adobe Systems, Inc. IBM stopped the battle involving Microsoft Corp., Apple Computer Corp. and Adobe with its decision to ship desktop publishing technologies from Adobe as well as one jointly developed by Microsoft and Apple. *Voila!* Everybody wins. Adobe's issues zipped up 8⅝ points to close at 38¾, a new 52-week high; Microsoft also hit a new high of 106¼ on Thursday, gaining 2½ points; Apple plucked 3 points to close at 36¾; and IBM collected a tidy 2⅛ points, ending Thursday at 107.

Other technology stocks reached unprecedented heights as well. Sage Software, Inc. reached a new high of 11⅜ on Thursday, up ¾ of a point for the week. Lotus Development Corp, continuing a climb that started last week, tipped the scales at a new high of 33¾ during trading on Thursday, then fell slightly to close at 33¼, up 2½ points. Digital Equipment Corp. gained 1⅜ of a point to close at 76⅛.

KIM S. NASH

NEWS SHORTS

Apple extends warranty offer

Apple Computer, Inc. made good on long-standing hints that it would beef up its product warranty plan when it announced last week that coverage would be extended from 90 days to one year on all hardware products sold in the U.S. after Jan. 1. Additionally, domestic customers who have bought Apple machines since 1978 are eligible for a special promotional price on Applecare, the company's extended service plan. The promotional Applecare plan, which is available from March 19 through May 31, offers an additional six free months of coverage when six months are purchased.

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Novell looks overseas

Novell, Inc. reported its highest international sales ever when it released its quarterly results last week. International sales made up 42% of net revenue, up from 39% during the fourth quarter of 1989. Overall, the Provo, Utah-based network software maker saw a 7% rise in first-quarter net revenue over last year's first-quarter total. Novell recorded net revenue of $105.9 million this quarter compared with $98.6 million a year ago. Net income for the quarter rose 37%, from $11 million a year ago to $15.1 million this quarter. Novell Chairman Raymond J. Noorda noted that first-quarter revenue is typically the company's lowest and that the income growth is attributable in part to expense control.

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ACM backs Adobe

The Association for Computing Machinery (ACM) has awarded the 1989 ACM Software System Award to the developers of the Postscript page description language. The developers of the industry-standard product are all employees of Adobe Systems, Inc. in Mountain View, Calif. In the citation, the ACM credits each of the growth of the desktop publishing market to Postscript, which "effectively made printing a software problem instead of a hardware problem, which permitted desktop publishing to flourish." Accepting the award for Adobe were John Warnock, co-founder, chairman and chief executive officer; Charles Geschke, co-founder, president and chief operating officer; Douglas Brotz, principal scientist; William Paxton, senior computer scientist; and Edward Taft, senior computer scientist.

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Bush backs antitrust reform

President Bush announced last week that he will support legislation to reduce the antitrust uncertainty involved in joint production ventures, which the computer industry argues are necessary to boost U.S. competitiveness in manufacturing. According to Bush, antitrust reform would allow firms to "pool their skills, build new production facilities and share investment risks."

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An encyclopedia and more

Britannica Software, Inc. said last week it will use Tandy Corp.'s hardware and distribution network to sell a stand-alone version of its Compton's Multimedia Encyclopedia. Under the agreement, Tandy's new 2500 XL personal computer, with an internal compact disc/read-only memory drive, will be the platform for the on-line encyclopedia, which contains the text of the 26-volume printed version of the encyclopedia, 15,000 pictures and 60 minutes of sound. The system will be sold through Tandy's Radio Shack Computer Centers and Plus Computer Centers.

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NCR to use New Wave

NCR Corp. has reached an agreement to license Hewlett-Packard Co.'s New Wave graphical user interface for use with NCR Cooperation. Cooperation, an object-oriented office automation system scheduled to be delivered during the second half of this year, is the first system software product in the Open Cooperative Computing Architecture, the client/server architecture that NCR announced in early February. NCR and Hewlett-Packard both declined to disclose details of the licensing agreement.

IBM hikes: Profuse exclusions

BY ROSEMARY HAMILTON
CW STAFF

Last week, IBM issued another one of its across-the-board price hikes that seems to exclude more than it includes. At the same time, it reduced prices on its mainframe memory products by up to 20%.

The company said that some hardware product prices will inch up by 3%, while services and software product costs will increase by 10%. Selected printers will cost 4% or 5% more.

However, any products announced or involved in any other pricing action on or after Nov. 30, 1989, will be excluded from price increases.

That exempts the new RISC System/6000 as well as new models in both the Application System/400 and Enterprise System/9370 lines.

The pricing action also excludes the following: systems and application software for the System/370, which includes all 3090, 4300 and 9370 models; Personal System/2 processors; and OS/2 system software. Official version software products are

also not involved.

Further, memory options for the AS/400, 3990 controller and PS/2 are not included, as are the Laserprinter as well as maintenance agreement charges and hourly rates of the National Service Division.

What's up?

What exactly will get a price hike, then? Not excluded were the new high-end disk drives, the 3390s, which were announced in early November, as well as hardware announced before Nov. 30. On the software front, the only major platform not on the excluded list was the AS/400.

According to an IBM spokesman, the "normal business review showed that a price increase on these products was appropriate at this time."

At the same time, the memory price reduction reflects "improved economies of scale" that the company has achieved in manufacturing, the spokesman added.

What it also means is more heat for the mainframe memory competition, namely Storage Technology Corp. — which is

assuming the marketing rights of the 3090 memory products produced by EMC Corp. — and Cambex Corp.

However, both competitors were quick to respond last week and tailored their prices to keep up with IBM. The two companies have kept their pricing between 20% and 30% less than IBM's list price and adjusted their new prices along these lines.

For example, IBM had been offering a 64M- to 128M-byte upgrade to central storage for $490,000 and will now offer it for $392,000. Cambex will offer a similar upgrade for $275,000. IBM's price for additional 64M-byte modules of expanded storage will be $150,000, while Cambex will sell them for $105,000.

According to Grant Wilcox, a product manager at Storage Tek, the company will come in at 80% of whatever IBM is selling its memory upgrades for. Storage Tek will be in a joint-marketing arrangement with EMC for most of 1990 and will then take over as the exclusive marketer of the memory products.

Dodge

has chosen to talk to you and because of your awareness of the court papers, I will tell you that the defendants' position is that the suit is groundless, meritless and factually incorrect."

The "hows" and "whys" of Dodge's departure are more than a matter of semantics or even of personal pride. Under Dodge's employment contract, if he left M&D voluntarily, he is obligated not to compete with the business software giant for a year. If he was discharged without cause, the noncompete agreement is waived.

"The only real business I know is the software business," Dodge told Computerworld in an interview last week. "I want to be free to do it."

The complaint he filed on March 1 recites a tale of good corporate relations gone south.

Last November, D&B surprised the industry when it acquired M&D's longtime and bitter competitor, MSA, and announced that it would merge the former foes into a company to be known as Dun & Bradstreet Software Services (DBSS).

Apparently no one was more surprised than Dodge, who was not informed until the eleventh hour of the pending acquisition and plan to merge the archrivals, according to the complaint. Subsequently, he contends, he suffered serious humiliation at the hands of D&B executives who

had until then seemed satisfied with his performance as he head of one of the company's most productive business units. Dodge contends the following:
• He did not find out that he would be vice-chairman of the new DBSS until he read it in a Nov. 20 D&B press release announcing that MSA Chairman and Chief Executive Officer John P. Imlay Jr. would be chairman and principal executive officer. Dodge said he had learned only

> **D**ODGE contends he suffered serious humiliation at the hands of D&B executives who had until then seemed satisfied with his performance.

the day before that Imlay would be the top executive of the company.
• He subsequently learned that Imlay's compensation would be much higher than his own.
• Designated "vice-chairman" of DBSS, Dodge said he was repeatedly rebuffed by D&B Executive Vice-President Volney Taylor — also named as a defendant in the Dodge suit — when he attempted to discover what duties might come with the title. After several of his own suggestions as to what role he might

play in the new venture were turned away, Dodge claimed that Taylor finally offered "an amorphous role at DBSS to which, among other things, he would be subordinate to Imlay."
• Following a Feb. 12 meeting with Taylor that, Dodge said, became unexpectedly and increasingly hostile, Dodge was barred from his office by security guards. Eventually, he said, he was allowed in for under an hour to collect his belongings. He has not since set foot in the company he helped found and build.

Nor, Dodge said, is he being allowed to found and build another. Immediately upon his departure, according to the complaint, his former employers set out to establish, through stories in the press and at least one letter sent to a company thought to be in negotiations with him, that Dodge had quit M&D and was bound by the noncompete agreement.

DBSS Chairman Imlay, who was not named in Dodge's suit, said that the controversy would not likely affect the new firm as it continues to form. Throughout the merger effort, he said, "I can tell you [Dodge] was very cooperative with me."

Dodge, currently pursuing "a whole lot of alternatives" under the name of Frank Dodge & Associates, petitioned the Suffolk Superior Court to enjoin D&B, M&D and respective corporate executives Taylor and James Ahlberg from interfering with his efforts to raise capital and solicit the clients necessary to start over in the software business.

Crime

consensus on what computer crime is and how much it costs, there is no appreciation for the magnitude of the problem and thus no incentive on the part of business and government to do anything about it, several experts said.

Compounding the problem is the propensity of industry and law enforcement to blame each other for failing to take stronger measures to combat computer crime. Information systems security managers complain that when they report crimes, the bulk of offenses go unpunished. Law enforcers often lack necessary skills and are too slow to investigate and prosecute computer crimes, they said.

"Where do corporations go for justice?" asked an information systems security manager who spoke on condition of anonymity. "Unless the crime is over $500,000 — better still,

over $1 million — they won't even give them the time of day."

Computer crimes are difficult, time-consuming and costly to investigate, and in the face of other crimes, have a low priority, law enforcers admit. "Computer crime just doesn't stack up against murder," said Ken Citarella, assistant district attorney for Westchester County in White Plains, N.Y. He also heads the district attorney's computer crime prosecution team.

"If someone comes in with any kind of crime, it has to be evaluated to see whether to expend resources, for its impact on community and the need for it to be prosecuted," he said.

The problem here is the failure of businesses to report crimes in the first place, Citarella added. It

puts the problem in the forefront, I don't think it is going to get solved. There is no incentive for local government to do it."

The problem of computer crime could be eased if businesses would improve their computer security, Rosenblatt said: "There are areas of business that there is no incentive to improve computer security."

The incentive to improve security will be forced upon businesses before long, Rosenblatt said. He predicted that there will be a spate of computer liability lawsuits — and, inevitably, deaths — stemming from companies failing to provide adequate computer security.

"If a hacker breaks into a computer at TRW and steals information and uses it to injure my reputation, they are going to have a lawsuit on their hands," Rosenblatt said. "At some point, we're going to see lawsuits against credit bureaus for not providing adequate security."

He also pointed to an instance a few years ago when hackers accessed a computer system at Sloan-Kettering Cancer Research Institute in New York and altered patient records, including information related to cancer treatment by radiation. It does not take much imagination to recognize that someone could have been killed as a result, Rosenblatt said.

When episodes such as these begin to happen with some frequency, the resulting public outcry will force business and government to investigate and prosecute computer crime cases more vigorously, he said.

Rosenblatt and many other experts predict the narrow view

that computer crime is an illegal act directed at or inside a computer. He defined computer crime as "illicit activity directed at copying, altering, deleting and/or gaining access to information processes stored or transmitted by computers."

Surveys that attempt to esti-

mate the magnitude of computer crime by number of incidents or by costs vary widely.

The National Center for Computer Crime Data (NCCCD) estimates computer crime losses at around $500,000 per year. Ernst & Young, meanwhile, puts the cost of computer crime at between $3 billion and $5 billion per year.

"I think both figures show that this is not a trivial problem," said J.J. "Buck" BloomBecker, director of NCCCD. "The real problem is not reflected in dollar losses" but when users are hindered from using computers, "a difficult thing to estimate."

That there are "valid statis-

tics on the incidence, characteristics, trends and losses from computer misuse and abuse" is one of several myths surrounding computer crime, said Donn Parker, a computer security consultant at SRI International, a Menlo, Calif.-based research firm.

Reliable data "cannot be obtained because victims generally resist revealing information . . . [and] definitions of what constitute misuse and abuse are too complex and varied," Parker said.

Yet another myth is that most computer crime is committed by insiders, Parker said. The only valid conjecture, based on what little information exists, is that most losses can be attributed to authorized users, both inside and outside of the computer.

In the second part of this four-part series, Computerworld will examine the difficulties of investigating and prosecuting computer crime.

Unwelcome attention

Banks and other commercial users of computer systems have been the favorite target of computer criminals.

Commercial users	
Banks	
Telecommunications	
Government	
Individuals	
Universities	

Source: National Center for Computer Crime Data

CW Chart: John York

Pickpockets

Theft is the predominant motive behind computer crime

Money theft	
Information theft	
Damage to software	
Malicious alteration	2%
Deceptive alteration	2%
Theft of services	
Harassment	2%
Extortion	1%

Source: National Center for Computer Crime Data

CW Chart: John York

HP's hiring practices subject of Immigration Service probe

BY J. A. SAVAGE
CW STAFF

The Immigration and Naturalization Service (INS) began investigating last week whether Hewlett-Packard Co. had hired programmers from China to perform work that is illegal under visas the company helped procure.

HP has shown "no evidence whatsoever of bad faith," said David Ilchert, district director of the San Francisco INS. However, it may have to apply for visas under a restrictive and time-consuming regulation to continue its program. The INS expects to issue a decision this week.

The workers were brought in on a B-1 visa, which allows training but does not allow significant work product to be contributed by its bearers. There is a one-to two-month delay on the application time involved for other visas, according to Polly Webber,

president of the American Immigration Lawyers Association.

Since 1988, HP has been using 30 contractors from China to test for quality control and, in the process, write some code for its New Wave applications software and its proprietary operating system.

The workers, 16 of whom remain in the U.S., are typically graduate degree holders with several years' employment in China. They are in the U.S. on a finite term, and the B-1 visa status ensures they leave when the work is over, said Marlene Somsak, an HP spokeswoman.

The INS met with the firm to review its policy after an HP employee complained to the press.

Congress is in the midst of rewriting immigration rules to allow companies more flexibility to import skilled workers. "Our immigrations laws were written in 1952 when we were an isolationist country," Webber said.

NEC, AT&T form trans-Pacific pact

BY ELLIS BOOKER
CW STAFF

AT&T Microelectronics and NEC Corp. said last week they will share technical know-how and manufacturing skills to deliver a wide range of semiconductor products.

The deal also calls for accelerated use of AT&T's chips in NEC communications and computer products.

Analysts took note of this second aspect of the agreement and said it was only the latest in a string of trans-Pacific relationships between U.S. and Japanese technology firms that appear designed as much to satisfy business needs as to relieve trade tensions between the two countries.

A month ago, AT&T Microelectronics and Mitsubishi Electronic Corp. reached a five-year accord that gives the AT&T subsidiary worldwide manufactur-

ing and marketing rights to Mitsubishi's static random-access memory (SRAM) chips in January, Sony Corp. purchased a factory and production technology from Advanced Micro Devices, Inc. Also, Intel Corp. and Japan's NMB Semiconductor recently announced a joint project to produce RAM chips.

"NEC has been rather reluctant to enter into strategic alliances because they believe they can do it all themselves," said Sheridan M. Tatsuno, president of Neoconcepts, a Freemont, Calif., consultancy.

Tatsuno said he believes that U.S. calls for "market access" into Japan are misplaced. "When the top 20 [companies] account for 80% of the consumption of chips, what's really needed is company access," he said.

The five-year venture with NEC, financial details of which were not released, is expected to

he finalized next month.

AT&T Microelectronics will be licensed to design, manufacture and market NEC's application-specific integrated circuits (ASIC), starting with its complementary metal oxide semiconductor gate array family. AT&T will lend manufacturing support to NEC's 4-bit microcontrollers as well.

A gate array is a semicustom device containing an array of unconnected logic gate cells that, when connected during the final stages of fabrication, determine the chip's characteristics.

NEC, in turn, will receive AT&T's computer-aided design (CAD) tools for creating next-generation ASICs. The agreement also covers future CAD and ASIC products.

NEC Executive Vice-President and Director Tomihiro Matsumura said the relationship was necessary because "the role of today's semiconductor industry is becoming too complex for one company to handle by itself."

IBM imprint on Adobe fonts

BY RICHARD PASTORE
and CHARLES VON SIMSON
CW STAFF

BOSTON — "This conference has certainly been more pleasant than last year's," said Chuck Geschke, president and co-founder of Adobe Systems, Inc.

Indeed, last week's Seybold Professional Publishing Conference was a good one for Adobe, thanks largely to IBM. The world's largest computer company last week selected Adobe's font technology for incorporation across all IBM Systems Application Architecture (SAA)-compliant operating systems. IBM also plans to offer a rival font technology — now being developed by Microsoft Corp. and Apple Computer, Inc. — but only on OS/2.

At a previous Seybold gathering in September, Apple and Mi-

Print market

Laser-printer font sales are projected to grow to $185 million this year

Worldwide
laser
expenditures
for fonts
(in millions)

$185*
$140

$100

1988   1989   1990

*Projected

Source: Infocorp, Inc.   CW Chart: John Klotz

crosoft pitted Adobe by announcing a joint effort to design and market their own open font technology, now called Truetype. A bristling John Warnock, Adobe's chief executive and co-founder, publicly chided the firms at that time for challenging

his dream of an Adobe Postscript industry standard.

Many users have also been concerned. "Our standard would be almost anyone's preference who works with this stuff," said Martha Galdrych, manager of electronic publishing at JCH Group Ltd. in New York. "Having different standards just makes you have to buy more hardware and software."

Steve Ballmer, Microsoft's vice-president of systems software, countered that Truetype will not be a monkeywrench in the gears of desktop publishing. "Our system coexists with the investments people have already made," he claimed. "We don't believe we are going against a standard because there isn't one."

Truetype's level of compatibility with Postscript applications and devices can only be de-

termined after the product's scheduled fourth-quarter debut, observers said. Meanwhile, IBM's decision has effectively cleared the smoke that had obscured Adobe's position as the de facto technology standard, analysts noted.

"I was worried that Apple and Microsoft ganging up on Adobe would preclude Adobe's access to the PC world," said Frederick Ravkas, an analyst at Morgan Stanley & Co. in New York. "But this endorsement changes the competitive landscape quite a bit."

"Now that IBM has bought into their technology, users can really relax — Postscript is going to be around for a long time," said Vera Allen-Smith, an analyst at Dataquest, Inc. in San Jose, Calif.

"I would rather have the SAA endorsement than not have it," Ballmer said. "But IBM hasn't

shut the door on future endorsement of Truetype for SAA platforms. The agreement that IBM did not want to alienate mainframe printing customers who had large Adobe investments.

"They did not want to send the message that they were going in a different direction that would obsolete what their 3090 mainframe customers already had," Ballmer said.

Adobe's
Geschke

"Having IBM make this decision raises everyone's comfort level that Adobe will continue to be the major player in the marketplace," Geschke told Computerworld.

Yet some users welcome the competition. "As much as it may cause me inconvenience to have conflicting fonts, I'm happy to see the market opening up," said Steve Messner, desktop publishing specialist at Imaging International, Inc. in New York.

Windows

at Macromind, Inc., a San Francisco-based multimedia developer for the Apple Computer, Inc. Macintosh and Windows.

Even competitors that have not produced a Windows product have expressed respect for Version 3.0. "Windows 3.0, after nearly five years, finally fulfills most of the original promise of Windows," said Ed Esber, chairman and chief executive officer of Ashton-Tate Corp.

Esber has been an outspoken critic of Windows, saying that users should move directly to OS/2 rather than the "Redmond two-step" of initial migration to Windows. Despite his enthusiasm for 3.0, Esber said he believes OS/2, in which his company has a much greater presence, is still a better migration choice.

The release delay has not dulled the interest of users. "Our evaluation cycle is complete; a delay in release of a few months does not really affect it," said Danny Moeller, assistant vice-president at Merrill Lynch & Co. in New York, which has standardized on Windows.

Moeller said he has been evaluating 3.0 for several months for

potential use in the investment banking division at Merrill Lynch.

The system is currently expected to be released in May, but some sources have pushed the date as far as mid-June.

Holding the line

While Microsoft executives will not speak on the record about the specifics of Windows 3.0, the system's apparent strength has not weakened the official line that the target markets for DOS and OS/2 are clearly distinguishable.

"The next version of Windows demonstrates that our commitment to [graphical DOS] has not lessened," said Steve Ballmer, Microsoft's vice-president of systems software.

However, "DOS will never be a server operating system," Ballmer declared. "Customers looking for IBM's Systems Application Architecture] server technology, including a number of advanced features, still need to look to OS/2. That is a decision that is independent of Windows."

Microsoft officials acknowledged that Version 3.0 will ship with three memory management modes. The real mode will work with all earlier Windows

applications, but it will not allow applications to work outside the 640K-byte memory limits of DOS.

Two protected modes, one for Intel Corp. 80286 platforms and the other for the 80386, will allow applications to expand beyond the 640K-byte limits. Protected-mode applications will have to be written specifically for Windows 3.0. Applications written for earlier versions of Windows will not run in protected modes.

It is the refinement of the three modes and the manner in which users will move among them that has pushed back the release, Microsoft executives

have confirmed.

"Programs in protected modes are still crashing," one independent developer working with the new version said. "It is not a difficult problem [for Microsoft] to fix, but it does take time."

In demonstrations of Version 3.0 for Computerworld by several third-party developers, the appearance and colors were noticeably better than in earlier versions of Windows.

In addition, Version 3.0 promises to be easier to install, eliminating the need to use a C prompt to get at the graphical interface.

Beyond memory manage-

ment, Version 3.0 will also bring Windows functionality on a true par with the Macintosh for the first time.

Of the 400 or so applications that run under Windows, few make much use of the Dynamic Data Exchange (DDE) capability that allows users to cut and paste between applications. As a result, they are little more than DOS applications with more attractive borders. Extensions to DDE in Windows 3.0 have made it easier to use and develop for, according to developers.

"Version 3.0 is the biggest step yet to giving DOS the capabilities of the Macintosh," Grant said.

Interleaf's Active-ly intelligent technology

BY RICHARD PASTORE
CW STAFF

BOSTON — Imagine document management software smart enough to automatically access pertinent information, evaluate it, produce a report from it and decide when and to whom to

send it electronically.

It may seem like the stuff of science fiction, but Interleaf, Inc. claims its Active Documents technology can do just that. The Cambridge, Mass.-based company previewed the technology at the Seybold Professional Publishers Conference here last week.

Interleaf said the technology, which will debut in applications in the fourth quarter, is "intelligent" enough to produce the following electronic documents:

• A confidential letter that will not print until it has been approved by the appropriate person.

• A report that incorporates data specific to your particular needs.

• A proposal that will show or hide different portions depending on your security clearance.

• A time-critical document that

knows when it is due and appears on screen to remind you to work on it.

Microcomputer managers at firms generally favor volumes of documents and rerouted interested in the obvious productivity enhancements the technology could offer. "We do s rt of customized experts; it sure sounds like it would increase our productivity," said Louis Vignapiano, computer manager at Union Bank in San Diego.

However, some observers said Active Documents may inadvertently cause problems for users. "Are we going too far in getting our information so focused that we're not aware of what's going on in the rest of the world?" asked Vera Allen-Smith, an analyst at market research firm Dataquest, Inc. in San Jose, Calif. "Could this be a kind of censorship?"

The technology will be the foundation of many different Active Documents applications to be written by Interleaf and third-party developers, the company said.

TRENDS

Manufacturing Executives

LOOK AT

Information Systems

How do manufacturing business executives view their firms' expertise with technology? According to a survey by Deloitte & Touche, they perceive not only their firms' proficiency to be low but also their basic experience to be lacking.

Under the grade

Manufacturing firms gave themselves paltry marks when it came to the level of experience they have with today's technology.

Self-assessment report card

	Grade
Product and process design	C-
Production process	D+
Expert systems application	D
Manufacturing planning and control	D+
Information technologies	D

A = state of the art, B = substantial,
C = moderate, D = little, F = no experience

Does technology yield benefits?

What benefit do manufacturing firms see from technology? The majority of respondents say modertoly, if any at all.

Percent of respondents (base of 759)

Technologies in use

The level of expertise is highest with personal computers, but even with a technology as seasoned as that, the proportion of respondents claiming to have state-of-the-art capabilities is still less than one quarter.

Percent of respondents using each technology (base of 759, multiple responses allowed)

Black indicates percentage claiming to have state-of-the-art capabilities

10% 20% 30% 40% 50% 60% 70% 80% 90%

Source: Deloitte & Touche, Cleveland, Ohio
CW Charts: John York

INSIDE LINES

Uploaded crime tips

Instead of dropping a dime in a pay phone to report street crimes, many citizens are doing their fingerpointing by personal computer, according to the San Bernardino police department. The "Whistle Blower" electronic bulletin board has received so many calls from all over the U.S. that the department plans to expand the system.

IBM's Unix, a moving target

IBM's problems with AIX may not be over yet. According to one software vendor, AIX Release 3 changes weekly, causing some frustration for the porting staff. In addition, a Fortran compiler, essential for running all those scientific and engineering-oriented applications, may be held up because of bugs.

The best defense . . .

While users are still waiting for Hitachi Data Systems' high-end mainframe to compete with Amdahl's 5990 and IBM's 3090J, HDS will unveil next week a few models to compete with an expected announcement of an IBM low-end mainframe, the 4391. While HDS already has several models in the 4381-class market, the firm is trying to reposition the new models against the IBM machines, which are expected to run between 10 million and 30 million instructions per second.

Wang overhead tossed overboard

No one can accuse Wang Vice President Rick Miller of discriminating against the rank and file in his layoff decisions. To counter complaints that he has spared the upper echelons from the sting of the blade, Miller reportedly sent out a memo that claimed 21.3% of the senior and executive vice-presidents were gone, 22% of the directors, 31.1% of the managers — an area Miller had promised to target — and 47.9% of the supervisory staff. In all, Miller said, he's eliminated 31.8% of the management staff. No wonder Wall Street loves this guy.

Pretty picture in some SAA areas

Officevision may be late, but IBM has other product pots on the front burner. OS/2 Extended Edition Version 1.2 features a graphical user interface and is slated to ship March 30.

For the folks down on the farm

Despite the continued full-court press on OS/2 as the operating system of the future, IBM and Microsoft really are hard at work on a much-rumored new version of DOS (DOS 5.0). Already in beta testing, the new DOS will reportedly stretch the memory limitations of the current DOS, now at 640K bytes, to 690K bytes. The design goal also calls for reducing the amount of DOS overhead from 80K bytes to 50K bytes.

Oracle takes its CASE on the road

Oracle is hitting the road to demonstrate a series of CASE development tools for the OS/2 platform. Look for an announcement on March 26th and delivery in the second quarter, according to a spokeswoman.

Outsource craze sweeps the land

The outsourcing craze has spawned the outsourcing conference craze, and two of the treat's biggest champions among IS executives — American Standard's Gary Biddle and Kodak's Henry Pfendt — have been busy on the rubber-chicken circuit, each speaking at three conferences in a little more than a month. Small wonder that someone referred to the pair recently, according to Biddle, as "The John Madden and Pat Summerall of outsourcing."

Somebody Dun things wrong at Dun and Bradstreet. The outing of Frank Dodge (see story page 1), something generally handled with a quiet handshake, is going to cost D&B's software subsidiaries a ton of adverse publicity, painful customer relations and mucho dinero in legal fees. Is that any way to run a business, especially one that is supposed to be so cognizant of the bottom line? Your reactions are more than welcome and can be directed to News Editor Pete Bartolik via MCI Mail (address: COMPUTERWORLD), fax (508-875-8931) or phone (800-343-6474).